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Exploring Narcissism, Psychopathy, and Machiavellianism in Youth: An Examination of
Associations with Antisocial Behavior and Aggression

A Thesis

Submitted to the Graduate Faculty of the
University of New Orleans
in partial fulfillment of the
requirements for the degree of

Master of Science
In
Psychology

By

Katherine S. L. Lau

B. A., University of British Columbia, 2004

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Abstract

This study sought to explore the differential associations of CU traits, narcissistic traits, and Machiavellian traits with overt aggression, relational aggression, delinquency, behavioral dysregulation, and emotional dysregulation in a community sample of boys and girls (ages 11-17). Results indicated that the three personality traits were significantly correlated with each other, yet distinct. CU traits, narcissistic traits, and Machiavellian traits demonstrated different unique associations with behavior problems. Specifically, narcissistic traits showed the strongest unique associations with overt aggression, relational aggression, behavioral dysregulation, and emotional dysregulation. CU traits showed the second strongest unique associations with overt aggression, delinquency and behavioral dysregulation, but were not associated with relational aggression or emotional dysregulation. Lastly, Machiavellian traits showed a strong unique association with emotional dysregulation, but were not uniquely associated with externalizing behavior problems. These findings have implications for intervention with aggressive and antisocial youth.

Personality, Callous and unemotional traits, narcissistic traits, Machiavellian traits, aggression, problem behaviors, youth

Overview

Personality traits are defined as “enduring patterns of perceiving, relating to, and thinking about the environment and oneself that are exhibited in a wide range of social and personal contexts” (American Psychiatric Association, 1994, p. 686). An abundance of literature on adults has examined personality traits in relation to negative social outcomes (John, Robins, & Pervin, 2008; Krueger et al., 1994). In general, research implicates three personality constructs in the development and manifestation of antisocial and aggressive behavior, namely psychopathy, narcissism, and Machiavellianism. While these three constructs share similar qualities, research indicates that they are associated with differing levels of proneness to and severity of aggressive behavior (McHoskey, 1995; McHoskey, Worzel, & Szyarto, 1998; Patrick & Zempolich, 1998; Skeem, Poythress, Edens, Lilienfeld, & Cale, 2003), thus supporting their uniqueness. Recent research also indicates that these three constructs provide important information about the problem behavior of children and adolescents (Barry, Frick, Adler, & Grafeman, 2007; Repacholi & Gibbs, 2000; Salekin & Frick, 2005; Slaughter, Dennis, & Pritchard, 2002). However, more research is needed on how psychopathy, narcissism, and Machiavellianism differ in their associations with aggression and antisocial behavior in youth. Identifying similarities and differences in aggression and antisocial behavior across these three personality constructs may inform prevention and intervention efforts aimed at changing the maladaptive characteristics of youth, thus reducing aggressive and antisocial behavior.

Psychopathy

Psychopathy is characterized by deficits in interpersonal, affective, and behavioral factors (Cooke & Michie, 2001). The interpersonal factor can be described as being superficially charming, narcissistic, and manipulative. The affective factor can be described as being callous

and unemotional, and lacking in empathy and remorse. The behavioral factor can be described as being impulsive, thrill and sensation seeking, irresponsible, and prone to antisocial behavior (Cleckley, 1976; Hare, 2003; Paulhus & Williams, 2002). Hare (1998) suggested that the affective component of psychopathy, more specifically, the lack of empathy and remorse, is highly associated with abnormalities in the processing of emotional information, whereas the impulsive and irresponsible lifestyle component is highly associated with intellectual deficits, lower socioeconomic status, and dysfunctional family backgrounds in forensic populations. Previous research on adults in the offender populations has supported these suggestions. Psychopaths versus non-psychopaths show differences in responses to fear eliciting stimuli, psychophysiological reactivity to distress cues, startle reflex, and fear imagery (Blair, Jones, Clark, & Smith, 1997; Patrick, 1994; Patrick, Bradley, & Lang, 1993; Vanman, Mejia, Dawson, Schell, & Raine, 2003). For example, in a sample of incarcerated sexual offenders, psychopaths high on both the affective factor and the behavioral factor, and psychopaths high only on the affective factor, show reduced affective startle responses (e.g., startle-elicited blinks) to noise while viewing negative and neutral pictures compared to non-psychopaths and psychopaths high only on the behavioral factor (Patrick et al., 1993). Vanman and colleagues (2003) found consistent results in a sample of community adults. They found that individuals identified as being psychopathic and primarily high on the affective factor showed a reduced startle response to emotionally laden stimuli. Individuals identified as being psychopathic and primarily high on the behavioral factor did not show a reduced startle response.

The utility of the psychopathic construct has been supported in previous research in that psychopathy has been shown to designate a subgroup of adult offenders who show more chronic and severe patterns of violent and antisocial behaviors (Serin, Peters, & Barbaree, 1990). In

addition, the abnormality in emotional responding that was linked only to the affective factor in psychopathy (Patrick et al., 1993; Vanman et al., 2003) suggests that affective blunting and lack of empathy may be one of the main reasons why individuals high in psychopathic traits commit aggressive and antisocial behavior.

Psychopathy, Aggression, and Antisocial Behavior. In adults and adolescents, psychopathy has frequently been associated with increased levels of aggression. Aggression is generally defined as any act committed with the intent to harm, injure or threaten (e.g., Berkowitz, 1993; Hawley, Little, & Rodkin, 2007). Research has shown that aggression can be effectively deconstructed into two unique functions, proactive and reactive, and two unique forms, overt and relational (Card, Stucky, Sawalani, & Little, 2008; Crick & Dodge, 1996; Crick & Grotpeter, 1995). Proactive aggression refers to the instrumental, planned, and “cold-blooded” use of aggression to attain goals and rewards, while reactive aggression is defined as hostile, defensive, retaliatory, and impulsive, often an angry response to provocation, frustration or threat (Berkowitz, 1993; Crick & Dodge, 1996; Poulin & Boivin, 2000). Overt aggression, also known as physical aggression, harms others by damaging their physical well-being, and includes acts of physical (e.g., hitting, slapping, kicking) and verbal (e.g., name calling, expletives) assaults (Coie & Dodge, 1998). Relational aggression can be subtle, covert, or direct, and refers to damaging social and peer relationships through such avenues as rumor spreading, threats to withdraw friendship, and intentional group exclusion (Artz, Nicholson, Magnuson, 2008; Crick & Grotpeter, 1995;).

Cornell and colleagues (1996) showed that adult offenders identified as psychopathic were characterized as using significantly more proactive physical, goal-directed aggression. They found non-psychopathic offenders to be mainly characterized as being reactively aggressive. It is

then theorized from previous studies, that due to the combination of the psychopath's reward dominant cognitive style, coupled with their impulsivity makes it hard for them to control their need for immediate gratification, while at the same time their callous affect, and inability to feel shame and guilt, allows them to easily disregard the effects of their behavior on their victims (Cornell et al., 1996; Hare, 1998; Mullins-Nelson, Salekin, & Leistico, 2006; Patrick, 1994; Scerbo et al., 1990). Correspondingly, research has shown that the affective factor of psychopathy (e.g., callous and unemotional traits) uniquely predicts the use of proactive (instrumental) aggression, while the impulsivity factor uniquely predicts the use of reactive (retaliatory) aggression in incarcerated adolescent offenders (Flight & Forth, 2007).

Psychopathy is also associated with aggression and antisocial behavior in younger samples. Children and adolescents high in psychopathic traits show higher levels of aggression, and have more diverse, stable, and severe conduct problems and delinquency in clinical and community samples than those low in psychopathic traits (Frick, Stickle, Dandreaux, Farrell, & Kimonis, 2005; Salekin & Frick, 2005; Van Baardewijk, Stegge, Bushman & Vermeiren, 2009). In a meta-analysis conducted across 21 non-overlapping samples of male and female juvenile offenders, Edens, Campbell, and Weir (2006), showed that psychopathy was significantly associated with general and violent recidivism (r_w 's of .24 and .25, respectively). In regard to the particular function of aggression, Raine and colleagues (2006) examined the differential correlates of reactive and proactive aggression in a sample of 16 year old boys. Proactive aggression was found to be uniquely associated with psychopathic personality, blunted affect, and serious and violent offending, while reactive aggression was found to be uniquely associated with impulsivity, hostility-aggression, and social anxiety. Additionally, in a non-referred sample of students (5th to 9th grade), Marsee, Silverthorn, and Frick (2005) found that self-reported

psychopathic traits were significantly associated with self-reported delinquency, and relational and overt aggression for boys and girls. There was also a particularly strong association between psychopathic traits and relational aggression for girls, and psychopathic traits and overt aggression for boys.

Recently, the study of psychopathy in youth has shifted to focus on the callous and unemotional dimension (e.g., callousness, poverty of emotions, and lack of guilt). This shift in focus emphasizes the importance of the affective component of the personality because the behavioral component (e.g., antisocial behavior and impulsivity) can be overly inclusive (e.g., many kids that exhibit antisocial behavior may not necessarily also be callous and unemotional). Like psychopathy in adults, callous and unemotional (CU) traits in youth are associated with many of the same correlates. For example, in a sample of non-referred adolescents, high CU traits was associated with low agreeableness, conscientiousness, and higher levels of sensation seeking, psychosocial impairment, externalizing problems, conduct disorder, and aggressive and antisocial behavior (Essau, Sasagawa, & Frick, 2006). In addition, high CU traits has been associated with being less reactive to threatening and emotionally distressing stimuli, and more thrill and adventure seeking (Blair, 1999; Loney, Frick, Clements, Ellis, & Kerlin, 2003; Wootton, Frick, Shelton, & Silverthorn, 1997). Correspondingly, in at-risk preschool children and youth, CU traits and low behavioral inhibition (e.g., fearlessness) are more strongly associated with proactive and reactive aggression (Frick, Cornell, Barry, Bodin, & Dane, 2003, 2003; Kimonis, Frick, Boris et al., 2006). Most notably, CU traits in children and adolescents have been shown to be important in identifying a subgroup of youth who exhibit serious and chronic problem behavior (e.g., Christian, Frick, Hill, Tyler, & Frazer, 1997; Frick, Cornell, Barry et al., 2003).

Across several studies, when compared to children and adolescents low in CU traits who do and do not exhibit conduct problems, youth high in CU traits typically show more violence, aggression, impulsivity, and criminal behavior (Christian et al., 1997; Essau et al., 2006; Frick & Marsee, 2006; Frick & Morris, 2004). Specifically, in a sample of 6-13 year old clinic-referred children (N = 120), Christian and colleagues (1997) assessed CU traits, oppositional defiant disorder, and conduct disorder using parent and teacher reports. They identified four clusters of children: one group was not elevated on any of these variables, two had high rates of oppositional defiant disorder symptoms and conduct disorder symptoms, and the last group exhibited conduct disorder symptoms and were also elevated on CU traits. The results of the study found that this last group had a greater history of police contacts, number and variety of conduct problems, and a stronger history of parental antisocial personality disorder. In another study (Barry, Frick, De Shazo, McCoy, & Loney, 2000) using a sample of clinic-referred children, those who showed a preference for thrill and adventure seeking (e.g., fearlessness), a reward-dominant response style, and who did not show elevated levels of anxiety, were also found to be high in CU traits, unlike their clinic-referred counterparts (e.g., attention-deficit hyperactivity disorder with severe conduct problems and low in CU traits) who showed the highest levels of anxiety symptoms. These associated aversive behaviors are apparent at a young age and seem to be fairly stable (Frick, Kimonis, Dandreaux, & Farell, 2003).

Similar results with CU traits have been found in youth in the community. Specifically, in a sample of community children, Frick, Cornell, Barry and colleagues (2003) found that kids high in CU traits and conduct problems had higher rates of aggression than any other group in their study (high CU traits and low conduct problems, high conduct problems and low CU traits, and low CU traits and low conduct problems). Furthermore, they found that the group high in

CU traits and conduct problems showed significantly higher levels of proactive aggression and self-reported delinquency, especially violent delinquency, compared to children low in CU traits. Interestingly, they also found that CU traits were especially predictive of delinquency in girls.

Taken together, this body of research suggests that both youth and adults with psychopathic traits, specifically those of the affective component (e.g., callousness and lack of remorse) are more aggressive, violent, and engage in more severe antisocial behavior than individuals without these traits.

Narcissism

Narcissism is characterized by an exaggerated sense of grandiosity, superiority, entitlement, and self-worth, and an excessive need for admiration (Raskin & Terry, 1988). Individuals high in narcissistic traits are further described as being hostile, hypersensitive to criticism, and lacking in empathy (American Psychiatric Association, 1994). According to Morf and Rhodewalt's (2001) cognitive-affective processing model, narcissism should be viewed as a dynamic set of personal, cognitive, and affective self-regulatory processes motivated on self-maintenance and construction. The narcissist's self-views are lofty (Paulhus & John, 1998), but unstable and vulnerable (Baumeister, Smart, & Boden, 1996). Thus, those that are high in narcissistic traits are motivated and preoccupied with regulating and maintaining unrealistically high levels of self-esteem, worth, concept, and superiority over others (Raskin, Novacek, & Hogan, 1991). Vazire and Funder (2006) found that narcissists are impulsive, and further suggest that they engage in self-defeating behaviors such as "bragging" to build esteem, or "aggression" to defend themselves, instead of taking the time to efficiently and appropriately establish their superiority over others. Papps and O'Carroll (1998) found that narcissists who are high in self-esteem experience anger and express aggression more than non-narcissistic and low-or high self-

esteem individuals. The combination of impulsivity, the constant maintenance of their grandiose self-views, and intense experience of anger makes the narcissist especially prone to aggressive behavior in response to a perceived slight.

In the adult literature, narcissism has been linked to self-esteem – specifically, unstable high self-esteem – aggression, and violence (Bushman & Baumeister, 1998; Raskin et al., 1991). Accordingly, in children and adolescents, narcissism has been associated with high self-esteem (Bushman et al., 2009), increased aggression (proactive and reactive, and overt and relational), conduct problems and delinquency (Barry, Frick et al., 2007; Barry, Frick, & Killian, 2003; Barry, Grafeman, Adler, & Pickard, 2007; Barry, Thompson et al., 2007; Washburn, McMahon, King, Reinecke, & Silver, 2004).

Narcissism, Aggression, and Antisocial Behavior. Research on adults has shown that due to their maladaptive traits (e.g., exhibitionism, entitlement, exploitativeness), narcissists are prone to engage in aggressive behaviors (Bushman & Baumeister, 1998; Reidy, Zeichner, Foster, & Martinez, 2008). In a sample of 91 undergraduate males (mean age = 20 years), Reidy and colleagues (2008) examined the effects of narcissistic traits on direct physical aggression. In a laboratory setting, participants competed in a series of reaction time trials, and had the option to administer electric shocks as punishment to an opponent regardless of winning or losing the trial, as often as they liked throughout the task. A non-response option was also provided as a measure of a non-aggressive response. Controlling for initial aggression levels, the results of the study indicated that the exploitative and entitlement characteristics of narcissism strongly predicted increased use of direct physical aggression, and higher intensities of shock levels. Additionally, in another study, being high in both self-esteem and narcissism predicted the most physically aggressive responding after an ego threat or humiliation (Bushman et al., 2008).

The results of research on narcissism and aggression in youth seem to be consistent with those found in adults. Narcissism has been demonstrated to differentiate between aggressive and non-aggressive students (Ang & Yusof, 2005), and to predict delinquency and be associated with future externalizing behaviors in children (Donnellan, Trzesniewski, Robins, Moffitt, & Caspi, 2005). Barry and colleagues (Barry et al., 2003; Barry, Frick et al., 2007; Barry, Grafeman et al., 2007; Barry, Thompson et al., 2007; Barry, Pickard, & Ansel, 2009) examined the relationship between narcissism and self-esteem in predicting delinquency, conduct problems, overt aggression and relational aggression in a series of studies. In one study using non-referred youth aged 9 to 15 years old, Barry and colleagues (2003) found both high narcissistic traits and low self-esteem were associated with higher levels of conduct problems. In addition, they showed that narcissism positively predicted conduct problems, after controlling for CU traits. In a second study using 160 at-risk youth (mean age 10 years, 9 months), narcissism was found to uniquely and positively predict proactive and reactive aggression, and conduct problems, after controlling for CU traits, and impulsivity (Barry, Thompson et al., 2007). In a third study utilizing a sample of at-risk 16 to 18 year olds, Barry, Grafeman and colleagues (2007), found narcissism to positively predict delinquency, overt aggression and relational aggression. They did not find narcissism and self-esteem to interact in predicting delinquency, overt aggression, and relational aggression.

Consistent with the adult literature, but contrary to the results of Barry and colleagues' (2003) study where they found that a combination of high narcissism and low self-esteem led to more conduct problem symptoms, Thomaes, Bushman, Stegge, and Olthof (2008) demonstrated that a combination of high narcissism and high self esteem led to aggression following shame. Specifically, in a sample of community children (10 to 13 year olds), they showed that under

conditions of shame (child was told that they lost against the worst player in a computer game, and were shown their name at the bottom of a rankings page), narcissism strongly predicted aggression (when given an opportunity, the child could blast their opponent with noise at their desired noise level) ($\beta = .31, t = 2.91, p < .01$), but narcissism did not predict aggression in the no shame control condition. Furthermore, their results showed that children who were both high on narcissism and self-esteem strongly predicted aggression in the shame condition ($\beta = .59, t = 4.00, p < .001$), whereas aggression was not significantly associated with children who were high in narcissism and low in self-esteem in the shame condition. Narcissism and self-esteem did not interact to predict aggression in the no shame control condition. The results of this study support the hypersensitive nature of narcissists that make them especially prone to reactive aggression.

It had been hypothesized by Salmivalli (2001) that the characteristics of exploitativeness and lack of empathy in individuals high in narcissistic traits would motivate the use of proactive, but not reactive aggression to maintain and regulate their grandiose self-image. Barry, Thompson and colleagues (2007) found narcissism to be independently associated with both proactive and reactive aggression in a sample of at-risk children. The focus on the maladaptive traits of narcissism (e.g., exploitativeness, entitlement, and exhibitionism) has also been shown to predict delinquency, overt aggression, and relational aggression better than self-esteem in a sample of at-risk youth (Barry et al., 2009). These findings are also supported by that of previous research by Trzesniewski, Donnellan, and Robins (2008), which suggested the association between narcissism and aggression in youth is driven by the narcissist's entitlement, exhibitionist, and exploitativeness traits. Likewise, Washburn and colleagues (2004) factor analyzed the Narcissistic Personality Inventory (NPI; Raskin & Terry, 1988) in a community sample of young African American urban adolescents to study its association with proactive and reactive

aggression and internalizing symptoms. Three factors emerged, Adaptive Narcissism, Exploitativeness, and Exhibitionism. The results of their study indicate that the Exploitative factor of the NPI predicted self-reported proactive aggression, but not teacher or peer reported aggression, or self-reported reactive aggression. Exhibitionism predicted self-reported anxiety and depression symptoms.

To summarize the results of these previous studies, narcissistic traits clearly predispose an individual to aggressive behavior, especially under conditions of perceived threat to their grandiose self-views. Individuals high in narcissistic traits are also prone to use aggression due to their exploitative and exhibitionistic nature. However, unlike individuals high in CU traits, the aggressive nature of the narcissistic individual may not be due just to their lack of empathy or CU traits. Instead, these studies on narcissism reveal them to be impulsive and insecure individuals who are greatly reactive to the effects of shame, and react poorly to the disparity between how they feel about themselves and how others feel about them.

Machiavellianism

Christie and Geis (1970) termed Machiavellianism (MACH) as a disposition to interpersonally manipulate and exploit others for self-interests – they are much more goal-oriented than person-oriented. Research has supported this notion, showing that individuals high in MACH traits endorse interpersonal strategies that advocate self-interest, deception and manipulation (Jakobwitz & Egan, 2007). Christie and Geis (1970) further explain that MACH individuals are characterized as having: a) a cynical view of human nature (e.g., people are weak and untrustworthy), b) lack of affect in interpersonal relationships (e.g., emotional detachment), c) lack of concern with conventional morality (e.g., cooperation as well as lying and defecting in group activities are perfectly acceptable), d) lack of gross psychopathology, and d) focus on

realistic and obtainable goals. The MACH individual places high priority on money, power, and competition (Stewart & Stewart, 2006). Perhaps the phrase that best captures the MACH is “the ends justify the means”, such that individuals high in MACH traits may view others as a means to an end (Christie & Geis, 1968; Gaebelein, 1973).

The Machiavellianism IV scale (MACH-IV; Christie & Geis, 1970) was created to capture and measure MACH traits in the general population. Using factor analyses on two separate samples (adults from the general population and college students), Christie and Geis (1970) found the items on the scale to generally produce three factors. The first factor represented the person’s willingness to manipulate and exploit others through the use of duplicitous tactics. The second factor measured a general negative view or lack of trust in human nature, and the third factor measured morality. However, even if an individual scores high on Machiavellian traits, it doesn’t always mean they will act in antisocial ways (Christie & Geis, 1970). Compared to psychopathy and narcissism, the aversive behavior of a MACH may be more dependent on the situation. Christie and Geis (1970) have stated that three general conditions must be met in order for differences in manipulative behavior between the high and low Machiavellians to be manifested: 1) In any given situation, its “seriousness” or importance of values at stake with the consequences extending beyond should arouse a certain amount of affect. Generally in these situations, people become personally and emotionally involved and can easily get distracted from a goal. People high in Machiavellian traits lack affect in interpersonal interactions, and thus do not get caught up in the emotional content of a situation and are able to remain “cool and collected”; 2) the situation should involve actual face-to-face interaction, meaning that the information people base their decisions on should not be based on looking at pictures, viewing videos, or reading written descriptions; and 3) there should be latitude for

improvisation, meaning that the structure of the interaction is open-ended, with no specific predefined terms of content or timing. It also implies that both subjects must improvise and can influence the outcomes of an ambiguous situation (Christie & Geis, 1970).

Machiavellianism, Aggression, and Antisocial Behavior. Due to the MACH's amoral, manipulative, and cynical attitude coupled with emotional detachment, they have been associated with more outward modes of aggression (Guterman, 1970; Harrel, 1980). For example, in a sample of adults, high MACH traits were associated with the commitment of more aggression against remorseful people who have stolen from the MACH individual (Harrel, 1980). They suggest that individuals high in MACH traits committed more aggression against remorseful wrongdoers because they were more suspicious of the sincerity of the remorse the wrongdoers displayed. These results are in accord with the characteristics that describe the MACH, such that individuals high in MACH traits have also been found to be domineering, controlling, and suspicious of the motives of others (McHoskey et al., 1998; Skinner, Giokas, & Hornstein, 1976; Wilson, Near, & Miller, 1996).

In a related vein, in competitive situations regardless of the possibility of success, individuals high in MACH traits versus those low in MACH traits, preferred a show of strength (e.g., bluffing) instead of sandbagging (e.g., feigning incompetence) their opponent. These results suggest that MACH individuals are more likely to present themselves to the best of their abilities, which may be linked to their need for dominance, to show that they are a force to be reckoned with (Fehr, Samsom, & Paulhus, 1992; Shepperd & Socherman, 1997; Sherry, Hewitt, Besser, Flett, & Klein, 2006). However, Leone and Corte (1994), found somewhat contradictory results, such that individuals high in MACH were similar to low self-monitors, more concerned about their outward behavior and appearances in social situations (adapting to the situation) than

they are about expounding and staying true to their beliefs and self. These mixed results may be due to the duplicitous nature of MACHs who also have an external locus of control. In addition to having a realistic perception of their own capabilities, they know that they cannot rely on the assistance of others, and that they are in an environment that they cannot completely control (Mudrack, 1989; Skinner et al., 1976). It is possible that MACHs are less likely to take risky chances because they have a more accurate perception of their chances of success. For this reason, MACHs are probably less likely to use overt aggression to achieve their goals, and more likely to use more subtle and covert tactics, such as relational aggression to get what they want. In fact high MACHs versus non-MACHs, have been shown to successfully use more manipulation, lying, ingratiation, and deception against others, while successfully resisting the attempts of manipulation used by others against them (Christie & Geis, 1970; Gunnthorsdottir, McCabe, & Smith, 2002; Mudrack, 1989; Skinner et al., 1976).

In a sample of undergraduates, McLeod and Genereux (2008) found that MACH traits positively predicted the acceptability of using lies for self-gain, and also the likelihood of using lies for conflict-avoidance and self-gain. MACH individuals also find emotionally-manipulative behavior to be acceptable, and due to their ability to manipulate the emotions of others, people have rated individuals high in MACH traits to be charming and intelligent (Austin, Farrelly, Black, & Moore, 2007; Wilson et al., 1996). Further evidence of their adaptability to differing situations can also be demonstrated in a recent study by Lyons and Aitken (2008), where individuals high in MACH traits were not found to be more likely to defect in a group activity (e.g., Prisoner's dilemma) than individuals low in MACH traits. Lyons and Aitken (2008) interpreted this finding as the ability for the MACH individual to be adaptively bistrategic, easily

adopting cooperative and defective strategies in service of their self-interests, a notion that has also been suggested by Wilson and colleagues (1996).

Studies on MACH traits in youth are relatively new, and thus much is still being explored based on findings in the adult literature. Sutton and Keogh (2000) investigated bullying as it relates to a person's attitude toward interpersonal relationships, social competition, and motivation in school in a sample of 198 children (9 to 12 years old). Their results show that children categorized as bullies scored significantly higher than controls on MACH traits, and that MACH children, who generally believe people are manipulable, were less sympathetic to victims of bullying. In addition, they found that MACH traits were strongly positively correlated with a desire for social success (e.g., "I try hard so that I can make fun of people who aren't as good as me"), implying that these children are strongly goal oriented and behave aggressively for instrumental reasons.

In two additional studies, Sutton and Keogh (2001) and Andreou (2004) examined the factor structure of the Kiddie Mach (Nachamie, 1970), a modified version of the MACH-IV scale designed to assess MACH traits in younger ages, in samples of children and found support for the factor structure that is similar in adults. Sutton and Keogh's (2001) study showed that the Kiddie Mach was composed of three main factors, "Lack of Faith in Human Nature", "Dishonesty", and "Distrust". Furthermore, Sutton and Keogh (2000; 2001) also found that Machiavellian traits were positively correlated with psychoticism and neuroticism, and negatively correlated with the lie scale of the Junior Eysenck Personality Questionnaire (Francis & Pearson, 1988), 'suggesting that high levels of Machiavellian responding are related to lack of socially desirable responding' (Sutton & Keogh, 2000, p. 450). Andreou's (2004) study revealed comparable results, using principal components factor analysis with varimax rotation, four

factors were revealed: Lack of Faith in Human Nature, Manipulation, Dishonesty, and Distrust. When Andreou (2004) further analyzed how the components were related to bullies, victims, and bully/victims (e.g., children who equally bullied and who were also victims of bullying), he found similar results to that of Sutton and Keogh (2000), that a lack of faith in human nature and overall MACH scores characterized both bullying behavior and victimization for boys, but not for girls. For girls, bullying behavior was associated with the endorsement of using manipulation in interpersonal situations. This sex difference found in bullying behavior can be somewhat accounted for by what has been found in previous research in aggression, such that boys are more likely to use direct and physical aggression, and girls are more likely to use indirect and relational aggression (Bjorkqvist, 2001; Card et al., 2008; Crick & Grotpeter, 1995).

Similarly, children high in MACH traits have been shown to use a wider variety of manipulative tactics (e.g., ommissive and commissive lying, ingratiation), are better able to conceal their deception while playing bluffing games, and are better able to detect when an opponent is bluffing or truth-telling, and have greater control over the impressions they make on other people (Braginsky, 1970; Nachamie 1970). In a sample of Greek school children, MACH traits have also been associated with bullying behavior, this association was also found to be significant for the cynical view of human nature factor beyond that of manipulative tendencies, dishonesty, and distrust of others (Andreou, 2004). Loftus and Glenwick (2001) recently conducted a study in a sample of 64 psychiatric inpatients (12 to 17 years old) linking MACH traits to delinquent behaviors. Their study found MACH scores to be positively correlated with the externalizing ($r = .35, p < .01$), thought problems ($r = .34, p < .01$), and delinquent behavior ($r = .38, p < .01$) scales of the Youth Self Report (YSR; Achenbach, 1991). However, MACH scores were not associated with the aggressive behavior subscale of the YSR. These findings

suggest that MACH traits can contribute to ‘acting-out’ but in a more covert fashion as MACH traits were not related to verbal and physical aggression. Furthermore, their results showed that MACH scores were negatively related to the Interpersonal Reactivity Index (IRI; Davis, 1983) perspective-taking subscale ($r = -.29, p < .05$), but was not associated with the IRI empathic concern subscale, running counter to the finding to previous research (Barnett & Thompson, 1984). The interpretations of these results should be made cautiously though as this study was conducted on a psychiatric inpatient sample of which the participants were comorbid for multiple disorders. However, the findings also encourage the further study of MACH traits in community youth and how they may relate to aggression and other adjustment variables.

There is also some evidence that MACH traits begin to manifest themselves in younger age groups and show similar findings to that of older age groups. Slaughter and colleagues (2002) conducted a study on preschool children (4 to 6 years old) looking at the relationship between MACH, theory of mind (e.g., mind-reading ability, false belief tasks), aggressive and prosocial behaviors, and sociometric status (e.g., Coie & Dodge, 1983). In this study they developed their own measure of MACH that was used by the teachers to report on their children’s overt MACH behavior, and thus did not assess attitudes and beliefs. There was no association between MACH and theory of mind. They suggest that the successful manipulative behavior of MACH children is due to “a distinct interpersonal behavioral style that develops separately from cognitive prerequisites” (Slaughter et al., 2002, p. 83). They did find that children rated as high in MACH traits were classified as the most controversial (e.g., a high number of both positive and negative nominations) in their peer group. Their controversial status can possibly be due to their engagement in both prosocial and aggressive behaviors, similar to the bistrategic behavior of adult MACHs and children identified as bistrategic for use of both

coercive and prosocial strategies (Hawley, 2003; Lyons & Aitken, 2008). These findings can also be interpreted as the need for the MACH to blend in with the other students and to use lies to avoid conflict, similar to the results found in adults (Leone & Corte, 1994; McLeod & Genereux, 2008).

The results of these studies demonstrate that MACHs are just as likely to engage in aggressive behavior as individuals high in CU and narcissistic traits, but their behavior is less impulsive and more dependent on the situation, involving more strategy and the use of less severe and more covert methods.

Similarities and Differences Among the Three Personality Constructs

It has been argued in previous research that at the subclinical or community level (e.g., in non-forensic, non-clinic referred populations), narcissism, Machiavellianism, and psychopathy are essentially equivalent because of their considerable overlap (Fehr et al., 1992; Gustafson & Ritzer, 1995; McHoskey, 1995; McHoskey et al., 1998). However, recent studies that examine narcissism, MACH, and psychopathy simultaneously within subclinical adult populations demonstrate that they have low to moderate associations (reported intercorrelations ranging from .18 to .62), with the weakest associations found between narcissism and MACH, and the strongest associations found between psychopathy and MACH (Campbell et al., 2009; Hodson, Hogg, & MacInnis, 2009; Jakobwitz & Egan, 2006; Lee & Ashton, 2005; Paulhus & Williams, 2002). The positive associations found between the three constructs can possibly be attributable to their shared commonalities of social malevolence and duplicity, self-centeredness, aggression, and emotional coldness (Paulhus & Williams, 2002). Perhaps the most striking similarity between the personalities that cause them to be maladaptive is their lack of empathy, but the extent of their aggressive behavior may be regulated by their differing abilities to feel shame, and

guilt (also known as remorse). For example, in terms of shame and guilt, narcissistic individuals are very threatened by perceived insults or provocations that attack their self or ego that invariably lead to shame, and in response, they react aggressively to the source of the perceived threat (Atlas & Them, 2008; Baumeister, Bushman, & Campbell, 2000; Thomaes et al., 2008). The narcissist's aggressive behavior in turn can be seen as a method to regain and maintain their positive self-concept, albeit maladaptively (Morf & Rhodewalt, 2001; Raskin et al., 1991; Vazire & Funder, 2006). MACHs to some extent experience shame, although blunted, but both narcissists and MACHs hardly ever experience guilt (Austin et al., 2007; Tangney & Fischer, 1995; Wastell & Booth, 2003). The psychopathic individual lacks the ability to feel guilt, shame, and anxiety, and thus makes them the most severe and maladaptive of the three personalities (Blair, 1999; Hare, 1998; Kimonis, Frick, Fazekas, & Loney, 2006; Mullins-Nelson et al., 2006). Research has shown that being high in psychopathic traits is most likely to be associated with violence and criminality (Serin et al., 1990).

A study by McHoskey and colleagues (1998) further demonstrates the similarities between MACH and psychopathy. McHoskey and colleagues (1998) argue that MACH is a global (e.g., dimensional) measure of psychopathy. In four studies of college undergraduates, McHoskey and colleagues (1998) found MACH to be moderately correlated with primary psychopathy (e.g., core dispositions of shallow affect, callousness, glibness) with reported r s ranging from .60 to .64, both $ps < .001$. Weaker correlations between MACH and secondary psychopathy (e.g. antisocial behavior as a result of anxiety and impulsivity) were found, $r = .31$, $p < .05$ to $.59$, $p < .001$. From their results they concluded that because MACH research has focused primarily in university populations, and most psychopathy research has focused on institutionalized populations, perhaps MACH “occup[ies] an intermediate position on the

psychopathy continuum, and that many of these individuals represent the “successful psychopath” (McHoskey et al., p. 207, 1998). McHoskey (1995) also conducted a study to examine the similarities between narcissism and MACH. He found that MACH scores were positively correlated with the entitlement and exploitativeness subscales of the Narcissistic Personality Inventory (Raskin & Hall, 1979), but negatively correlated with the self-sufficiency subscale. These results suggest that possibly the shared link between MACH and narcissism is their disposition to interpersonally manipulate and exploit others for their needs.

In contrast to these findings, Jones and Paulhus (2009) agree that MACH and psychopathy do share many similarities within the subclinical population, but that they are also separate constructs. Jones and Paulhus (2009) state that even though MACHs and psychopaths are highly selfish and callous individuals, they argue that the main difference between the two are the tactics that they utilize to gain what they want. They contend that MACHs are temporal strategists; they will go about getting what they want in a strategic non-impulsive (e.g., good impulse control) fashion, whereas psychopaths are impulsive and just dive right in. However, this has yet to be directly examined.

Although there seems to be substantial shared variance between psychopathy, MACH, and narcissism, the distinction between the three constructs has been further supported. Research has demonstrated that psychopathy, MACH, and narcissism have differential associations with the Big Five personality traits, IQ, and antisocial behavior, and more recently genetic heritability (Jakobowitz & Egan, 2006; Lee & Ashton, 2005; Paulhus & Williams, 2002; Vernon, Villani, Vickers, & Harris, 2008).

Paulhus and Williams (2002) conducted a study in an undergraduate sample to examine how MACH, narcissism, and psychopathy mapped onto the Big Five personality traits

(extraversion, neuroticism, conscientiousness, agreeableness, and openness). In addition they investigated the possible differential correlations of these personalities to self-enhancement and intelligence (IQ). Initial results found narcissism, MACH, and psychopathy to be moderately intercorrelated with Pearson's r s ranging from .25 to .50. In regards to the Big Five personality traits, all three personalities were negatively correlated with agreeableness, $r = -.36$ (narcissism), $r = -.47$ (MACH), $r = -.25$ (psychopathy). Narcissistic and psychopathic traits were positively correlated with extraversion ($r = .42$ and $r = .34$, respectively), and openness ($r = .38$ and $r = .24$, respectively). MACH and psychopathic traits were negatively correlated with conscientiousness ($r = -.34$ and $r = -.24$). Only psychopathic traits were negatively correlated with neuroticism ($r = -.34$). MACH and psychopathic traits, but not narcissistic traits, were found to be correlated with higher nonverbal, relative to verbal IQ scores. Narcissistic traits, but not MACH or psychopathic traits were associated with more self-enhancement. Furthermore, they found that narcissistic and psychopathic traits were correlated with overestimating self-reported intelligence.

Expanding on these findings, Vernon and colleagues (2008), recently conducted a behavioral genetic study investigating the genetic and environmental contributions to MACH, narcissistic, and psychopathic traits and their link to the Big Five personality traits. Their sample consisted of 75 pairs of monozygotic, and 64 pairs of dizygotic adult twins. The results of their study indicate that genetics and non-shared environmental influences contribute moderately highly to variance found within narcissistic (.59 and .41, respectively) and psychopathic (.64 and .32, respectively) traits. Genetics accounted for .31 of the variance in MACH, whereas shared environmental influences accounted for .39 of the variance, and non-shared environmental influences accounted for .30 of the variance. As can be seen, MACH only had a small genetic component, and was the only one of the three personalities to show a strong shared

environmental component, suggesting that the manipulative tendencies and the cynical view of human nature may be more of a learned response in addition to being inherited. In terms of the Big Five personality traits, they found narcissism to be positively correlated with extraversion ($r = .36$) and openness to experience ($r = .30$), and negatively with agreeableness ($r = -.37$). Psychopathy correlated negatively with agreeableness ($r = -.59$) and conscientiousness ($r = -.37$). MACH correlated positively with neuroticism ($r = .23$), and negatively with agreeableness ($r = -.49$) and conscientiousness ($r = -.32$). They also found that the individual differences between MACH, psychopathy, and narcissism, and the Big Five personality traits were largely attributable to genetic and non-shared environmental factors.

The results of this study are interesting. On average, previous research has found that the highest intercorrelations are generally observed between psychopathy and MACH, and the lowest are observed for narcissism and MACH (Jakobwitz & Egan, 2006; Lee & Ashton, 2005; Paulhus & Williams, 2002). However, here for genetic heritability, narcissism and psychopathy show much more variance that is explained by genetics whereas MACH shows the weakest genetic heritability and is also the only one to show influences from the shared environment. This is interesting as an earlier study by Kraut and Price (1976) demonstrated that although the MACH scores of children and parents didn't correlate strongly, what was significant was the positive correlation between a parent's MACH scores and the child's ability to successfully persuade and manipulate others. This suggests that the child may not have adopted a MACH attitude yet, but are already learning the manipulative behavior of the parents. The overall results of the study by Vernon and colleagues (2008) suggest that despite their behavioral similarities, there are differences worth exploring that can have important implications for treatment.

These findings have recently stimulated the extension of the concurrent study of narcissism, MACH, and psychopathy to aggressive behavior in children and youth. In the only study to examine these personalities together in adolescents, Chabrol, Van Leeuwen, Rodgers, and Séjourné, (2009) found narcissism, MACH, and psychopathy to be intercorrelated low to moderately with each other. Further, using regression analysis and controlling for the alternative personalities, they found psychopathy to positively predict delinquency, while MACH negatively predicted delinquency. Narcissism did not predict delinquency. The results from this study, similar to the adult literature, show that narcissism, psychopathy, and MACH are overlapping constructs, but also show that even in adolescence the three personalities are unique, as evidenced by their differential prediction of delinquency.

A plethora of research on adults has implicated three personality traits predisposed to antisocial and aggressive behavior, namely psychopathy, narcissism, and Machiavellianism. The utility of the distinctions between these personalities has been supported in research extended to children and adolescents. Although they overlap considerably, research suggests that different mechanisms may drive the antisocial and aggressive behavior exhibited, and this leads to the differing needs of treatment and intervention efforts for these separate personalities. The different treatment and intervention methods needed to reduce the aggressive behavior may be elucidated by highlighting the commonalities and differences of these personalities in terms of aggressive and antisocial outcomes.

Statement of Problem

In summary, researchers have been successful in identifying three related, but distinct personality constructs associated with antisocial and aggressive behavior in adults. Although the three constructs overlap to some extent, research does support their uniqueness (Jakobwitz &

Egan, 2006; Lee & Ashton, 2005; Paulhus & Williams, 2002; Vernon et al., 2008). Individuals high in psychopathy and MACH are both reward oriented (e.g., money) (O'Brien & Frick, 1997; Christie & Geis, 1970), however, individuals high in psychopathy are also impulsive and thus focus on short-term goals (Pardini, Lochman, & Frick, 2003; Lynam et al., 2005). According to Christie and Geis (1970), the MACH is an individual that is cold, calculating and strategic (e.g., weighing costs and benefits), and focused on long-term goals. To be impulsive would go against these characteristics. However, previous research has found mixed results pertaining to MACH traits and planning behavior. Some have found positive relationships and others no relationship (Allen, 1990; Repacholi & Slaughter, 2003). These mixed results may be due to issues of measurement, such that impulsivity is measured generally and globally, instead of being separated into different domains of emotional, cognitive, and behavioral impulsivity. However, despite these mixed results, individuals high in MACH traits were not found to reactively aggress more than others, if there is no gain involved (Jones & Paulhus, in press). Instead of being reward dominant, individuals high in narcissism are more focused on issues that pertain to their self-concept, such as their grandiosity, entitlement, and superiority over others (Morf & Rhodewalt, 2001). Narcissists may also be impulsive, but they act impulsively to defend, validate, and regulate their feelings of self-worth (Jones & Paulhus, in press; Raskin et al., 1991; Vazire & Funder, 2006). In addition to being reactively aggressive, the exploitative disposition of individuals high in narcissism may lead to proactively aggressive behavior, possibly to serve their grandiose self-views (Barry, Grafeman et al., 2007; Salmivalli, 2001).

Recently, the study of narcissism, psychopathy, and MACH has been extended to children and adolescents and similar results have emerged. Where psychopathic traits, especially the callous and unemotional component, seem to designate the most maladaptive and aggressive

group (Christian et al., 1997; Frick, Cornell, Barry et al., 2003; Salekin & Frick, 2005), Machiavellian traits seem to designate the most adaptive of the three aversive personalities (Chabrol et al., 2009; Hawley, 2003). Individuals high in narcissistic traits have mainly been conceptualized as reactive and defensive aggressors, the aggression arising from their insecurity, and hostility (Bushamn & Baumeister, 1998; Morf & Rhodewalt, 2001). They are less maladaptive than individuals high in callous and unemotional traits, as the very reasons why they aggress (e.g., insecurity and anger) may be more readily addressed and amenable to treatment. In contrast, individual's high in callous and unemotional traits whose lack of empathy and remorse (e.g., easily disregarding the feelings of their victims), and reward dominant cognitive style (e.g., bias towards the positive expectations of a reward while simultaneously ignoring the negative consequences) make treatment very difficult.

Although there is an abundance of research that examines these personality traits separately, very little research is available on the simultaneous study of the three constructs in relation to aggression, antisocial behavior, and dysregulation in children and adolescents. It is important to study them simultaneously because of the significant overlap between the three personality traits. In addition, by studying MACH, narcissism, and psychopathy, especially callous and unemotional traits, simultaneously, we are able to compare them in regards to shared features. Because the personalities are very similar, identifying their differential associations with externalizing outcomes may lend insight into what factors should be primary foci in treatment settings. For example, some researchers argue that psychopathy, especially primary psychopathy (characterized dominantly by deficiencies in affective factors), and MACH are the same (McHoskey et al., 1998). However, research in non-referred adults and children that examines these traits separately has found psychopathy to be much more maladaptive -

associated with more severe and chronic antisocial and aggressive behavior – whereas MACH traits are associated with more covert, interpersonally manipulative behavior that may not be as detrimental to the victims (Jones & Paulhus, 2009). If psychopathy and MACH are the same, why have behavioral as well as other differences been observed? How may these external differences help us understand the unique underlying mechanisms of these personality traits that have important implications for treatment and interventions?

Recent research has started to examine these differences. For example, Vernon and colleagues (2008) conducted a behavioral genetic study in an adult sample of monozygotic and dizygotic twins. They found that narcissism and psychopathy have a moderate to large genetic heritability component, while MACH had a small genetic heritability component, and was the only one to show a strong influence from shared environmental factors. These results suggest that MACH behaviors are more environmentally determined, in addition to being influenced by genetics when compared to narcissism and psychopathy. In regards to the Big Five personality traits, narcissism, psychopathy, and MACH all correlated negatively with agreeableness. Both psychopathy and MACH were negatively correlated with conscientiousness. Narcissism was positively correlated with extraversion and openness, and MACH was positively correlated with neuroticism. These results also indicate that individual differences between the three personalities and the Big Five were entirely attributable to genetic and non-shared environmental variables.

In one of the few existing studies that focus on the three constructs simultaneously in adolescents, all three constructs were positively correlated with delinquent behavior (Chabrol et al., 2009). Furthermore, when the three personality traits, along with sadistic traits were put into a hierarchical factor analysis, four unique factors emerged (intercorrelations of Pearson's r

ranging from .01 to .26), instead of one general deviance factor. When delinquency was regressed onto the three constructs, psychopathic traits independently predicted higher levels of delinquency for boys, and MACH traits independently predicted lower levels of delinquency for girls, even after controlling for demographics, and other psychopathologies (e.g., depression, borderline personality, and impulsivity). Narcissistic traits did not predict delinquency, an inconsistent finding with previous literature that focused on narcissism alone (Barry, Frick et al., 2007; Barry et al., 2009). The differential correlation of these personality constructs with delinquent behavior further supports their distinctiveness, and leads to the question of whether they are uniquely associated with other important behavioral outcome variables. Examining the unique association among MACH, psychopathic, and narcissistic traits and variables such as aggression, delinquency, and dysregulation has important implications for designing interventions that take into account youth's underlying personality and its contribution to problem behavior.

The purpose of the current study is to expand on the existing literature by simultaneously examining how the three personality traits are associated with externalizing behavior problems (e.g., aggression, delinquency, and dysregulation) in order to determine whether they are differentially associated with these important outcomes. In addition, this study also expands on past research by examining not only general aggression as an outcome, but also testing associations between the three personality traits and important subtypes of aggression (overt and relational). Understanding the differentiating features of these personality types provides information about which traits are most associated with negative outcomes, which has implications for treatment.

Hypotheses

1. Machiavellian, callous and unemotional (CU), and narcissistic traits will be moderately significantly correlated with each other.
2. It is hypothesized that CU traits will be significantly associated with overt aggression, relational aggression, and delinquency.
 - a. The association between CU traits, aggression, and delinquency is expected to remain significant after controlling for narcissistic and Machiavellian traits.
Further, it is expected that CU traits will show the strongest unique association with aggression and delinquency variables.
3. It is hypothesized that narcissistic traits will be significantly associated with overt and relational aggression and delinquency.
 - a. The association between narcissistic traits, aggression, and delinquency is expected to remain significant after controlling for CU and Machiavellian traits.
However, it is expected that the association between narcissism and aggression/delinquency variables will be weaker than the association between CU traits and these variables and stronger than the association between Machiavellian traits and these variables.
4. It is hypothesized that Machiavellian traits will be significantly associated with relational aggression, but not with overt aggression or delinquency.
 - a. The association between Machiavellian traits and relational aggression is expected to remain significant after controlling for narcissistic traits and CU traits.
However, it is expected that the association between Machiavellian traits and

relational aggression will be weaker than the association between CU traits and relational aggression and narcissism and relational aggression.

5. It is hypothesized that CU traits will be significantly associated with behavioral dysregulation (e.g. impulsivity) but not with emotional dysregulation.
 - a. The association between CU traits and behavioral dysregulation is expected to remain significant after controlling for narcissistic traits and Machiavellian traits. Further, it is expected that CU traits will show the strongest unique association with behavioral dysregulation.
6. It is hypothesized that narcissistic traits will be significantly associated with emotional and behavioral dysregulation.
 - a. The association between narcissistic traits and emotional dysregulation is expected to remain significant after controlling for CU traits and Machiavellian traits. Further, it is expected that narcissistic traits will show the strongest unique association with emotional dysregulation.
 - b. The association between narcissistic traits and behavioral dysregulation is expected to remain significant after controlling for CU traits and Machiavellian traits. However, it is expected that the association between narcissistic traits and behavioral dysregulation will be weaker than the association between CU traits and behavioral dysregulation and stronger than the association between Machiavellian traits and behavioral dysregulation.
7. It is hypothesized that Machiavellian traits will be significantly associated with emotional dysregulation but not with behavioral dysregulation.

- a. The association between Machiavellian traits and emotional dysregulation is expected to remain significant after controlling for CU traits and narcissistic traits. However, it is expected that the association between Machiavellian traits and emotional dysregulation will be weaker than the association between narcissism and emotional dysregulation.

Methods and Design

Participants

Participants were recruited within the University of New Orleans (UNO) and surrounding community by means of announcements in undergraduate classes, flyers posted around campus and the general New Orleans area, Campus News announcement emails, and classified ads placed on the Internet. Children and adolescents 11 to 17 years of age and their parents were recruited as a part of a larger study on parenting and adolescent behavior. For the purposes of the current study, only youth reports were used. A power analysis was conducted using the power analysis program G-Power to determine the adequate sample size needed to detect a moderate effect size of .28. With power set at .80, and alpha set at .05, the analysis indicated that we would need a sample size of at least 150 participants. A sample of 141 participants was collected; however 2 cases were not included in the final analyses because they were missing more than 20% of their data points on one of the main measures of interest. The final participating sample consisted of 139 youth (51% females) and was between the ages of 11 to 17 ($M = 13.55$; $SD = 2.18$). Of the youth who participated, 52% were Caucasian, 26% were African American, 8% were Hispanic, 3% were Asian, 2% were Native American, and 9% reported “other” for ethnicity. For the purposes of data analysis, ethnicity was coded as 0 = Caucasian (52%) and 1 = minority (48%).

Measures

Demographic Survey. A standard demographic questionnaire was conducted to assess participants' gender, age, grade level, GPA, and ethnicity.

Peer Conflict Scale (PCS; Marsee & Frick, 2007). The PCS is a 40-item self-report measure designed to measure aggression. Twenty of the items are designed to assess reactive and proactive forms of overt aggression (reactive overt: "If others make me mad, I hurt them"; proactive overt "I threaten others to get what I want"). The other 20 items are designed to assess the reactive and proactive forms of relational aggression (reactive relational: "If others make me mad, I tell their secrets"; proactive relational: "I gossip about others to become popular"). The items of the PCS are rated on a 4-point scale (0 = "not at all true," 1 = "somewhat true," 2 = "very true," and 3 = "definitely true") and scores are calculated by summing the items to create either total reactive, total proactive, total overt, or total relational scales (range 0 – 60) or the four subscales (range = 0 – 30). In a study using a community sample of youth (9th to 12th grade; Marsee, 2008) good internal consistencies were reported for the total proactive and reactive subscales (Cronbach's alphas: proactive = .86; total reactive = .87). In a sample of at-risk adolescents (aged 16 to 18; Barry, Grafeman et al., 2007) and detained girls (aged 12 to 18 years; Marsee & Frick, 2007), good internal consistencies were reported for the total overt and relational subscales of the PCS (Cronbach's alphas: overt = .90 - .93; relational = .86 - .87). In addition, the PCS has demonstrated good internal consistency for the four subtypes of aggression (Cronbach's alphas: reactive overt = .85 - .87; proactive overt = .82 - .84; reactive relational = .80 – .83; proactive relational = .74 - .76) in studies of detained girls (Marsee & Frick, 2007) and a community sample of youth (aged 6 to 17 years; Marsee, Weems, & Taylor, 2008).

Recent research has also shown that the proactive and reactive scales of the PCS have unique associations with expected emotional and cognitive correlates in adolescents (Marsee & Frick, 2007; Muñoz, Frick, Kimonis, & Aucoin, 2008). In a sample of detained adolescent boys, increased aggressive responding following low levels of provocation were associated with reactive overt aggression scores on the PCS and greater autonomic reactivity during provocation (Muñoz et al.). For the purposes of the study, the total overt and relational aggression scales were calculated and demonstrated good internal consistency (Cronbach's alphas: total overt = .91; total relational = .85).

Antisocial Process Screening Device (APSD; Frick & Hare, 2001). The APSD is a 20-item self-report measure that assesses antisocial behavior in children. The APSD was modeled after the PCL-R (Hare, 1991), which is the gold standard for assessing psychopathic traits in adults. Each item of the APSD is rated on a 3-point scale as either 0 (not at all true), 1 (sometimes true), or 2 (definitely true). A factor analysis was conducted by Frick, Bodin, and Barry (2000) in a large community sample of children ($n = 1136$). They found that the APSD can be divided into three unique factors: (1) a seven-item narcissistic personality component (NARC; e.g., “brags excessively,” “can be charming”), (2) a five-item impulsivity component (IMP; e.g., “acts without thinking,” “does not plan ahead”), and (3) a six-item callous and unemotional component (CU; e.g., “does not show emotions,” “is not concerned with the feelings of others”). Past studies have also supported the three factor structure of the self-report version (Vitacco, Rogers, & Neumann, 2003). The internal consistencies of these three factors have been reported to be low to moderate in range, with the following Cronbach's alphas: CU = .59 to .76, NARC = .74 to .85, IMP = .53 to .74 (Frick et al., 2000; Vitacco et al., 2003)

Scores on the APSD have identified groups of children with conduct problems that show more severe and aggressive patterns of conduct problem behaviors (Caputo, Frick, & Brodsky, 1999; Christian et al., 1997; Frick, Cornell, Barry et al., 2003). Additionally, the APSD has also identified children with conduct problems who show unique characteristics that are consistent with the construct of psychopathy, such as sensation-seeking behaviors, a reward dominant response style, and deficits in processing of emotional stimuli (Barry et al., 2000; Blair, Colledge, Murray, & Mitchell, 2001; Frick, Lilienfeld, Ellis, Loney, & Silverthorn, 1999; Loney et al., 2003). For the purposes of the study, NARC factor to assess narcissistic personality traits was calculated and showed adequate internal consistency (Cronbach's alpha = .69).

Inventory of Callous-Unemotional Traits-Youth Self-Report (ICU; Frick, 2004).

Callous and unemotional (CU) traits in youth will be assessed using the ICU. It is a 24-item self-report questionnaire that consists of three factors, namely callousness, uncaring, and unemotional. The items of the ICU are scored on a four-point scale (0 = "not at all true," 1 = "somewhat true," 3 = "very true," and 4 = "definitely true"). The ICU was developed from four items of the CU subscale of the APSD (Frick & Hare, 2001), a widely used measure of antisocial behavior in children. In clinic and community samples (Frick et al., 2000), the CU subscale (6-items) of the APSD has been shown to be a unique factor. It has also been shown to identify a subgroup of children with more severe conduct problems than other children with conduct disorder (Christian et al., 1997). However, likely due to its small number of items, the CU scale has shown only moderate internal consistency in previous studies (e.g., Loney et al., 2003). The ICU was created to overcome these issues. It was developed from the 4 items ("is concerned about the feelings of others," "feels bad or guilty," "is concerned about schoolwork," and "does not show emotions") from the APSD CU subscale that loaded significantly on the CU factor in

both clinic-referred and community samples (Frick et al., 2000). Four negatively and four positively worded items were constructed from each of these four original items of the APSD.

Recent research on two separate samples has supported the reliability and validity of the ICU (Essau et al., 2006; Kimonis et al., 2008). Essau and colleagues (2006) conducted the first large scale study to examine the properties of the ICU in a sample of 1,443 (774 boys and 669 girls) non-referred German adolescents (13 to 18 years old). Exploratory factor analysis revealed three factors, namely callousness, uncaring, and unemotional. Using confirmatory factor analysis indicated that this three-factor model provided the best fit to the data. Acceptable internal consistencies were reported for the total scale (Cronbach's alpha = .77), and callousness (Cronbach's alpha = .77), uncaring subscales (Cronbach's alpha = .73). The unemotional subscale demonstrated marginal internal consistency (Cronbach's alpha = .64). The ICU subscales also demonstrated concurrent validity with measures of externalizing behaviors, such that callousness ($r = .37, p < .001$) and uncaring ($r = .26, p < .001$) correlated positively, while unemotional was negatively correlated ($r = -.11, p < .001$) with the externalizing behavior. In addition the ICU was negatively correlated with agreeableness ($r = -.57, p < .001$) and conscientiousness ($r = -.49, p < .001$), personality factors of the Big Five personality dimensions.

Kimonis and colleagues (2008) conducted a study on a sample of American adolescent offenders ($n = 248$; 188 boys and 60 girls) between the ages of 12 and 20, to explore whether the findings of Essau et al. (2006) extended to a group of juvenile offenders. Using confirmatory factor analysis, three independent factors were found, namely callousness, uncaring, and unemotional. Internal consistencies for the three factors ranged from good to poor, callousness (Cronbach's alpha = .80), uncaring (Cronbach's alpha = .81), and unemotional (Cronbach's alpha = .53). The total ICU score demonstrated good internal consistency (Cronbach's alpha =

.81). The construct validity of the total score for the ICU, showed significant associations with delinquency, ranging from $r = .26$ to $r = .38$ ($p < .05$), and aggression, ranging from $r = .27$ to $r = .44$ ($p < .05$). In addition, the total ICU score was negatively correlated with a self-reported empathy ($r = -.51$, $p < .001$). For the current study, the total ICU score was calculated to measure callous and unemotional traits and demonstrated adequate internal consistency (Cronbach's alpha = .76).

The Children's Machiavellian Scale (Kiddie Mach; Nachamie, 1969). To assess Machiavellian traits in children, the Kiddie Mach will be used. The Kiddie Mach is a 20-item derived from the Mach IV scale that assesses Machiavellianism in adults. The scale was constructed to measure the degree to which youth believe that people can be manipulated. The scale is administered in a standard 5-point Likert format (1 = Strongly disagree to 5 = Strongly agree). The validity of the Kiddie Mach has been demonstrated in several studies that indicated that children who had high scores were better able to distinguish between their opponent's lying and truth telling. They were also better able to conceal their own deception when playing a bluffing game (Christie & Geis, 1970). Children high in Machiavellianism were also found to be more successful at persuading other children to eat quinine-flavored crackers and used different lying strategies to do so in order to gain rewards (Braginsky, 1970). The Kiddie Mach has shown acceptable reliability in samples with ages ranging from 8 – 17 years of age (Andreou, 2004; Barnett & Thompson, 1985; Loftus & Glenwich, 2001; Nachamie, 1970; Sutton & Keogh, 2000). Coefficient alphas for the scale have generally been reported to be in the .40 to .70 range (Loftus & Glenwich, 2001). For the purposes of this study, the total Kiddie Mach score was calculated and showed acceptable internal consistency (Cronbach's alpha = .74).

Abbreviated Dysregulation Inventory (ADI; Mezzich, Tarter, Giancola, & Kirisci, 2001). The ADI is a 30-item self-report questionnaire used to measure dysregulation in adolescents. The ADI is a shortened version of the original Dysregulation Inventory (DI; Mezzich et al., 2001) and was created using item response theory to include only those items with the highest discriminant coefficients (A. C. Mezzich, personal communication, July 19, 2004). Both the full DI (Mezzich et al., 2001) and the ADI (Pardini et al., 2003) have shown significant correlations with established measures of emotional and behavioral distress in adolescent boys and girls. The ADI is designed to assess 3 aspects of dysregulation (emotional/affective, behavioral, and cognitive). Each aspect of dysregulation is assessed using 10 items each. The Emotional/Affective Dysregulation (ED) subscale measures poorly regulated emotional behavior (e.g., “I have trouble controlling my temper”). The Behavioral Dysregulation (BD) subscale measures behavioral impulsivity, hyperactivity, aggressivity, and sensation-seeking. The Cognitive Dysregulation (CD) subscale measures thinking and planning behavior, goal-directedness, task persistence, and the ability to learn from mistakes. Each item on the ADI is rated on a 4-point scale from 0 (never true) to 3 (always true). Further, the ED subscale of the ADI has been shown to be uniquely associated with reactive aggression in detained adolescent girls while controlling for levels of proactive aggression (Marsee & Frick, 2007). The ED (Cronbach’s alpha = .88), and BD (Cronbach’s alpha = .80) subscales of the ADI have shown good internal consistency in past research (Marsee, 2008; Mezzich et al., 1997; Pardini et al., 2003). The CD (Cronbach’s alpha = .84) subscale of the original DI has also shown good internal consistency (Mezzich et al., 2001). For the purposes of the study, the behavioral and emotional subscales of the ADI were calculated and demonstrated good internal consistencies (Cronbach’s alpha; behavioral dysregulation = .83; emotional dysregulation = .84).

Self-Report of Delinquency (SRD; Elliot, Huizinga, & Ageton, 1985). The SRD is a 36-item structured interview that assesses delinquent behavior (e.g., destroying property, stealing, carrying weapons, selling drugs, hitchhiking, physical fighting, rape, alcohol and drug use) that was committed by the youth in the past 12 months. For each of 36 delinquent acts the youth is asked (a) whether or not he or she has ever engaged in the stated problem behavior, (b) the number of times he or she has engaged in the behavior, (c) the age at which he or she first engaged in the behavior, and (d) whether or not he or she has friends who have engaged in the behavior. The remaining 10 items assess the arrest history of all members of the youth's immediate family (including aunts, uncles, and grandparents). Krueger and colleagues (1994) found scores on the SRD to demonstrate good internal consistency (Cronbach's alpha = .88 for boys and .82 for girls). They also reported significant correlations between the SRD and informant report of delinquency (e.g., friends or family who reported on youth's delinquent behavior during the past 12 months) ($r = .48, p < .01$), police contacts ($r = .42, p < .01$), and court convictions ($r = .36, p < .01$). For the purposes of this study, the total SRD score (e.g., the sum of yes ratings for part a) to assess delinquency was calculated and showed good internal consistency (Cronbach's alpha = .80).

Procedures

Before data was collected, the UNO Institutional Review Board (IRB) granted approval for conducting the study. Several recruitment strategies were used. First, large undergraduate classes in Psychology were identified and instructors were contacted to obtain permission to make an announcement about the study during class time. Trained graduate research assistants (RAs) visited the classes and made announcements regarding the opportunity to participate in a study of adolescent behavior. Students were informed that they may refer youth within the 11-17

age range (or themselves if they were 17) and that they may receive extra credit for making a referral. RAs then collected the names and contact information for anyone with a referral. In addition to class announcements, flyers describing the study were posted across the UNO campus and the New Orleans community with contact information for the Youth Social and Emotional Development (YSED) lab that is conducting the study. Also, the UNO Campus News included an announcement regarding the study on its weekly campus-wide email to all faculty, staff, and students. Finally, an announcement for the study was posted on the Internet on the Craigslist website (an online classified ads website). All potential participants (parents and youth) were informed that they would receive \$25 each for participation.

For names collected from UNO classes, the RAs contacted students to set up an appointment date and time for the consent/assent process and the assessment. For all other means of recruitment (e.g., flyers, email announcements, and classified ads), RAs took phone calls in the lab and scheduled the assessment at that time. When participants arrived at the laboratory for their scheduled assessment, an RA reviewed the consent/assent forms with the parents and youth. The forms were read aloud to each participant and ample opportunity for questions was provided. The potential participants were informed that they could drop out of the study at any time without any consequences. After obtaining parental consent and youth assent, the youth and parent were taken to separate rooms and given privacy to complete the questionnaires. The measures within each questionnaire package were counterbalanced to avoid any ordering effects. Assessments took approximately 90 – 120 minutes, and participants were allowed short breaks if necessary. Upon completion of the parent and youth assessments, each parent and each child received \$25 in compensation for their time.

Results

Table 1 reports the means, standard deviations, and correlations for the demographic and main study variables. Correlational analyses revealed age to be positively correlated with narcissism ($r = .19, p < .05$) and delinquency ($r = .19, p < .05$), suggesting that older youth showed higher levels of narcissistic traits and delinquent behaviors. In addition, gender was negatively correlated with overt aggression ($r = -.21, p < .01$) and delinquency ($r = -.18, p < .05$). These findings suggest that boys in this sample were more likely than girls to report engaging in overt aggression and delinquent behavior. Gender was also positively correlated with emotional dysregulation ($r = .19, p < .05$), suggesting that girls reported higher levels of emotional dysregulation than boys. Subsequent regression analyses controlled for both age and gender. Ethnicity was not significantly associated with any of the main study variables (see Table 1).

Hypothesis 1 stated that Machiavellian, callous and unemotional (CU), and narcissistic traits would be moderately correlated with each other. To test this hypothesis, bivariate correlations were calculated and are provided in Table 1. As shown in Table 1, Machiavellian, callous and unemotional, and narcissistic traits were significantly positively correlated with each other ($r_s = .36$ to $.52, p_s < .001$).

Table 1

Correlations, means, and standard deviations for main study variables

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	Mean	SD	Min	Max
1. MACH											31.53	9.17	12.00	73.00
2. CU	.52***										21.79	7.75	6.00	41.00
3. NARC	.50***	.36***									3.62	2.60	0.00	12.83
4. OVT	.25**	.42***	.49***								4.69	6.59	0.00	29.00
5. REL	.27***	.38***	.53***	.59***							4.49	5.24	0.00	28.00
6. DEL	.46***	.47***	.57***	.71***	.47***						2.24	2.98	0.00	14.78
7. BD	.30***	.31***	.33***	.12	.22**	.35***					8.33	5.56	0.00	27.00
8. ED	.42***	.34***	.42***	.39***	.28***	.44***	.62***				7.53	5.59	0.00	25.00
9. Age	.16	-.07	.19*	.02	-.04	.19*	-.02	-.00			13.55	2.18	11.00	17.00
10. Gender	.03	-.12	.00	-.21**	-.03	-.18*	.12	.19*	-.01					
11. Ethnicity	.14	-.16	-.03	.13	-.03	.02	.08	.14	-.20*	.12				

Note. MACH = Machiavellian Traits; CU = Callous and Unemotional Traits; NARC = Narcissistic Traits; OVT = Overt Aggression; REL = Relational Aggression; DEL = Delinquency; BD = Behavioral Dysregulation; ED = Emotional Dysregulation. Gender was coded as 0 = male and 1 = female. Ethnicity was coded as 0 = Caucasian and 1 = Minority.

N = 139.

* $p < .05$, ** $p < .01$, *** $p < .001$.

Hypothesis 2 stated that CU traits would be significantly associated with overt aggression, relational aggression, and delinquency. In order to test this hypothesis, zero-order correlations were calculated and are reported in Table 1. These analyses indicated that callous and unemotional traits were positively correlated with overt aggression ($r = .42, p < .001$), relational aggression ($r = .38, p < .001$), and delinquency ($r = .47, p < .001$). Hypothesis 2a predicted that the association between CU traits, aggression, and delinquency would remain significant after controlling for narcissistic and Machiavellian traits, and that CU traits would show the strongest unique association with aggression and delinquency variables. To test this hypothesis, a series of hierarchical regression analyses were conducted with the three types of traits as the predictors and overt aggression, relational aggression, and delinquency as the dependent variables (see Table 2). Gender and age were entered into the regressions at the first step due to correlations with the variables of interest. Gender was coded 0 for males and 1 for females. Due to the large correlations between the predictor variables, possible multicollinearity among the variables was examined for all regression analyses by calculating variance inflation factor (VIF) and tolerance values. Tolerance represents the proportion of variability in an independent variable not explained by other independent variables, whereas VIF indicates whether the proportion of variability in an independent variable has been exaggerated due to multicollinearity (Allison, 1999). In general, these values did not indicate problematic levels of multicollinearity, as all VIFs were less than 2.50 and all tolerance values were greater than .40, which are considered acceptable values (Allison, 1999). As predicted, CU traits accounted for unique variance in overt aggression ($\beta = .31, t = 3.64, p < .001, R^2 = .06$), relational aggression ($\beta = .25, t = 2.84, p < .01, R^2 = .04$), and delinquency ($\beta = .25, t = 3.21, p < .01, R^2 = .04$), even after controlling for narcissistic and Machiavellian traits. However, contrary to predictions, CU

traits did not show the strongest association with the aggression and delinquency variables. Specifically, the standardized beta for CU traits in the prediction of these variables was lower than the beta for narcissism in the prediction of these variables.

Hypothesis 3 stated that narcissistic traits would be significantly associated with overt aggression, relational aggression, and delinquency. The zero-order correlations are reported in Table 1. These analyses indicated that narcissistic traits were positively correlated with overt aggression ($r = .49, p < .001$), relational aggression ($r = .53, p < .001$), and delinquency ($r = .57, p < .001$). Hypothesis 3a predicted that the association between narcissistic traits, aggression, and delinquency would remain significant after controlling for CU and Machiavellian traits. However, it was expected that the association between narcissism and aggression/delinquency variables would be weaker than the association between CU traits and these variables and stronger than the association between Machiavellian traits and these variables. Table 2 shows the results of the regression analyses. As predicted, narcissistic traits accounted for unique variance in overt aggression ($\beta = .45, t = 5.46, p < .001, R^2 = .15$), relational aggression ($\beta = .50, t = 6.07, p < .001, R^2 = .18$), and delinquency ($\beta = .40, t = 5.30, p < .001, R^2 = .12$), even after controlling for CU and Machiavellian traits. However, contrary to predictions, narcissistic traits showed the strongest association with the aggression and delinquency variables. Specifically, the standardized beta for narcissistic traits in the prediction of these variables was higher than the beta for CU in the prediction of these variables.

Hypothesis 4 stated that Machiavellian traits would be significantly associated with relational aggression. The zero-order correlations are reported in Table 1. These analyses indicated that Machiavellianism was positively correlated with relational aggression ($r = .27, p < .001$). Interestingly, Machiavellian traits were also positively correlated with overt aggression (r

= .25, $p < .01$) and delinquency ($r = .46, p < .001$). Hypothesis 4a predicted that the association between Machiavellian traits and relational aggression would remain significant after controlling for CU and narcissistic traits. However, it was expected that the association between Machiavellianism and relational aggression would be weaker than the associations between CU traits and narcissistic traits with this variable. Table 2 shows the results of the regression analysis. Contrary to the hypothesis, Machiavellian traits did not account for unique variance in relational aggression ($\beta = -.10, t = -1.10, p = .27, R^2 = .01$). Additional analyses were conducted to determine whether Machiavellian traits uniquely predicted overt aggression and delinquency after controlling for CU traits and narcissistic traits. Consistent with hypotheses, Machiavellian traits were no longer associated with overt aggression and delinquency.

Table 2 (table continued)

Regression Analyses Examining the Three Personality Traits as Predictors of Aggressive Behavior and Delinquency

Model 1	Criterion Overt Aggression	Total R ²	Unstandardized β	Standardized β	t	p	partial
Step 1	Age	.04	-.05	-.02	-.26	.795	-.02
	Gender		-1.97	-.16	-2.22	.028	-.19
Step 2	Callous and Unemotional		.25	.31	3.64	.000	.30
	Narcissism		1.08	.45	5.46	.000	.43
	Machiavellian	.35***	-.09	-.13	-1.49	.140	-.13
Model 2	Criterion Relational Aggression						
Step 1	Age	.00	-.25	-.10	-1.40	.164	-.12
	Gender		.04	.00	.06	.954	.01
Step 2	Callous and Unemotional		.17	.25	2.84	.005	.24
	Narcissism		1.01	.50	6.07	.000	.46
	Machiavellian	.33***	-.06	-.10	-1.10	.272	-.10
Model 3	Criterion Delinquency						
Step 1	Age	.07**	.15	.11	1.65	.101	.14
	Gender		-.90	-.15	-2.30	.023	-.20

Table 2 (table continued)

Step 2	Callous and Unemotional		.10	.25	3.21	.002	.27
	Narcissism		.46	.40	5.30	.000	.42
	Machiavellian	.44***	.04	.11	1.29	.200	.11

Note. Gender was coded 0 = male and 1 = female.

N = 139.

** $p < .01$. *** $p < .001$.

Hypothesis 5 stated that CU traits would be significantly associated with behavioral dysregulation but not with emotional dysregulation. In order to test this hypothesis, zero-order correlations were calculated and are reported in Table 1. These analyses indicated that callous and unemotional traits were positively correlated with behavioral dysregulation ($r = .31, p < .001$), and contrary to hypothesis, were also positively correlated with emotional dysregulation ($r = .34, p < .001$). Hypothesis 5a predicted that the association between CU traits and behavioral dysregulation would remain significant after controlling for narcissistic and Machiavellian traits, and that CU traits would show the strongest unique association with behavioral dysregulation. To test this hypothesis, a hierarchical regression analysis was conducted with the three types of traits as the predictors and behavioral dysregulation as the dependent variable (see Table 3). Gender and age were entered into the regressions at the first step due to correlations with the variables of interest. As predicted, CU traits accounted for unique variance in behavioral dysregulation ($\beta = .19, t = 2.01, p < .05, R^2 = .02$), even after controlling for narcissistic and Machiavellian traits. However, contrary to predictions, CU traits did not show the strongest association with behavioral dysregulation. Specifically, the standardized beta for CU traits in the prediction of this variable was lower than the beta for narcissism in the prediction of behavioral dysregulation. To examine whether the association between CU traits and emotional dysregulation would remain after controlling for narcissistic and Machiavellian traits, a hierarchical regression analysis was conducted with the three types of traits as predictors and emotional dysregulation as the dependent variable (see Table 3). Gender and age were entered into the regressions at the first step due to the correlations with the variables of interest. Consistent with initial hypothesis, CU traits was no longer associated with emotional dysregulation ($\beta = .15, t = 1.68, p = .10, R^2 = .01$).

Hypothesis 6 stated that narcissistic traits would be significantly associated with behavioral dysregulation and emotional dysregulation. The zero-order correlations are reported in Table 1. These analyses indicated that narcissistic traits were positively correlated with behavioral dysregulation ($r = .33, p < .001$) and emotional dysregulation ($r = .42, p < .001$). Hypothesis 6a predicted that the association between narcissistic traits and emotional dysregulation would remain significant after controlling for CU and Machiavellian traits, and that narcissistic traits would show the strongest unique association with emotional dysregulation. The results of the regression analyses are shown in Table 3. As predicted, narcissistic traits accounted for unique variance in emotional dysregulation ($\beta = .27, t = 3.17, p < .01, R^2 = .05$), even after controlling for CU and Machiavellian traits. Specifically, narcissistic traits showed the strongest association with emotional dysregulation. Hypothesis 6b predicted that the association between narcissistic traits and behavioral dysregulation would remain significant after controlling for CU and Machiavellian traits; however this association would be weaker than the association between CU traits and behavioral dysregulation and stronger than the association between Machiavellian traits and behavioral dysregulation. Table 3 shows the results of the regression analyses. As predicted, narcissistic traits accounted for unique variance in behavioral dysregulation ($\beta = .22, t = 2.41, p < .05, R^2 = .04$), even after controlling for CU and Machiavellian traits. However, contrary to predictions, narcissistic traits showed the strongest association with behavioral dysregulation. Specifically, the standardized beta for narcissistic traits in the prediction of this variable was higher than the beta for CU traits in the prediction of behavioral dysregulation.

Hypothesis 7 stated that Machiavellian traits would be significantly associated with emotional dysregulation but not with behavioral dysregulation. The zero-order correlations are

reported in Table 1. These analyses indicated that Machiavellian traits were positively correlated with emotional dysregulation ($r = .42, p < .001$) and behavioral dysregulation ($r = .30, p < .001$). Hypothesis 7a predicted that the association between Machiavellian traits and emotional dysregulation would remain significant after controlling for CU and narcissistic traits, however, the association between Machiavellian traits and emotional dysregulation would be weaker than the association between narcissistic traits and emotional dysregulation. Table 3 shows the results of the regression analyses. As predicted, Machiavellian traits accounted for unique variance in emotional dysregulation ($\beta = .21, t = 2.17, p < .05, R^2 = .02$), even after controlling for CU and narcissistic traits. Consistent with the hypothesis, Machiavellian traits showed a weaker association with emotional dysregulation than the association between narcissistic traits and emotional dysregulation. To examine whether the association between Machiavellian traits and behavioral dysregulation would remain after controlling for narcissistic and CU traits, a hierarchical regression analysis was conducted with the three types of traits as predictors and behavioral dysregulation as the dependent variable (see Table 3). Gender and age were entered into the regressions at the first step due to the correlations with the variables of interest. Consistent with initial hypothesis, Machiavellian traits was no longer associated with behavioral dysregulation ($\beta = .09, t = .90, p = .37, R^2 = .01$).

Table 3

Regression Analyses Examining the Three Personality Traits as Predictors of Behavioral and Emotional Dysregulation

Model 1	Criterion: Behavioral Dysregulation	Total R^2	Unstandardized β	Standardized β	t	p	partial
Step 1	Age	.02	-.16	-.06	-.79	.432	-.07
	Gender		1.61	.15	1.83	.070	.16
Step 2	Callous and Unemotional		.14	.19	2.01	.046	.14
	Narcissism		.48	.22	2.41	.017	.20
	Machiavellian	.18***	.06	.09	.90	.368	.08
Model 2	Criterion: Emotional Dysregulation						
Step 1	Age	.04*	-.19	-.07	-.97	.335	-.08
	Gender		2.38	.22	2.94	.004	.25
Step 2	Callous and Unemotional		.11	.15	1.68	.095	.14
	Narcissism		.57	.27	3.17	.002	.26
	Machiavellian	.29***	.12	.21	2.17	.032	.19

Note. Gender was coded 0 = male and 1 = female.

N = 139.

* $p < .05$. *** $p < .001$.

Supplementary Analyses

Due to the high correlation between overt and relational aggression ($r = .59, p < .001$), supplementary analyses were conducted to determine which of the three personality traits best predicted overt and relational aggression after controlling for the other aggressive subtype. A series of hierarchical regression analyses were conducted where gender, age, and the other aggressive subtype (relational or overt) were entered on the first step. CU, narcissistic, and Machiavellian traits were entered on the second step. Gender was coded 0 for males and 1 for females. The results of the analyses are shown in Table 4.

In model 1, overt aggression was entered as the criterion variable. The results of the analysis revealed that after controlling for relational aggression, CU traits ($\beta = .21, t = 2.63, p < .01, R^2 = .03$), and narcissistic traits ($\beta = .24, t = 2.87, p < .01, R^2 = .03$) still significantly predicted overt aggression, although these associations were reduced. Machiavellian traits ($\beta = -.09, t = -1.12, p = .26, R^2 = .01$) did not significantly predict overt aggression.

In model 2, relational aggression was entered as the criterion variable. The results of the analysis revealed that after controlling for overt aggression, only narcissistic traits continued to significantly predict relational aggression ($\beta = .32, t = 3.78, p < .001, R^2 = .06$); however the association was weaker. CU traits no longer predicted relational aggression ($\beta = .12, t = 1.40, p = .17, R^2 = .01$). Machiavellian traits ($\beta = -.05, t = -.53, p = .60, R^2 = .00$) did not significantly predict relational aggression.

Table 4

Regression Analyses Examining the Three Personality Traits as Predictors of Aggressive Behavior, controlling for the Other Subtype

Model 1	Criterion Overt Aggression	Total R^2	Unstandardized β	Standardized β	t	p	partial
Step 1	Age	.39***	.07	.02	.34	.732	.03
	Gender		-1.99	-.16	-2.46	.015	-.21
	Relational Aggression		.49	.41	5.20	.000	.41
Step 2	Callous and Unemotional		.17	.21	2.63	.010	.22
	Narcissism		.59	.24	2.87	.005	.24
	Machiavellian	.46***	-.06	-.09	-1.12	.264	-.10
Model 2	Criterion Relational Aggression						
Step 1	Age	.36***	-.23	-.10	-1.41	.160	-.12
	Gender		.73	.07	1.04	.299	.09
	Overt Aggression		.35	.42	5.20	.000	.41
Step 2	Callous and Unemotional		.08	.12	1.40	.165	.12
	Narcissism		.34	.32	3.78	.000	.31
	Machiavellian	.45***	-.03	-.05	-.53	.595	-.05

Note. Gender was coded 0 = male and 1 = female.

N = 139.

*** $p < .001$.

Discussion

This study sought to examine the differential and unique associations of callous and unemotional traits, narcissistic traits, Machiavellian traits with overt aggression, relational aggression, delinquency, behavioral dysregulation, and emotional dysregulation. The results of the present study indicated that the three personality traits (callous and unemotional, narcissistic, Machiavellian) were highly correlated with each other in this sample of community youth. The strongest correlations were observed between Machiavellian traits with CU traits and narcissistic traits, and the weakest correlation between narcissistic traits and CU traits. This suggests that the three personality traits share a significant proportion of overlapping characteristics; however because the associations were not perfect, this also implies that they are distinct from each other. Prior research in adults and adolescents has shown similar correlations, with the strongest correlations between psychopathic traits with Machiavellian traits and narcissistic traits, and the weakest correlation between Machiavellian traits and narcissistic traits (Campbell et al., 2009; Chabrol et al., 2009; Jakobwitz & Egan, 2006). The different strengths of correlations observed in the present study and that of previous research may be due to several issues such as different methods of assessment for the personality traits, and the older age of previous samples. Recent research has identified that CU traits and narcissistic traits are relatively stable (Barry, Barry, Deming, & Lochman, 2008; Barry, Frick et al., 2007; Frick, Kimonis et al., 2003), however the stability of Machiavellian traits over time is not known. For example, studies that have examined the genetic heritability of these three personalities have shown that psychopathic traits and narcissistic traits have a strong genetic component, whereas Machiavellian traits have a strong shared environmental component (Vernon et al., 2008). The genetic influences in psychopathic traits and narcissistic traits may make these traits more resistant to influences from

the environment, therefore contributing to the observed stability of these traits across time. In addition, perhaps the shared commonalities between psychopathic traits and narcissistic traits are due to similar genetic influences, and become more similar over time (Saudino, 2005). In contrast, Machiavellian traits are more likely to change due to factors in the environment, and may become more dissimilar from the two other personalities with time. This may explain some of the observed higher correlations between narcissistic and CU traits, and the lower correlations between Machiavellian traits and narcissistic traits in older samples.

Furthermore, and consistent with hypotheses, all three personality traits were positively associated with maladaptive behaviors, namely overt aggression, relational aggression, delinquency, behavioral dysregulation, and emotional dysregulation. However, and as put forth by the hypotheses of the current study, the three personalities differed in their strength of associations with these behavior problems. Contrary to our hypotheses that CU traits would designate the most severe of the three personalities and have the strongest associations with aggressive behavior and delinquency, narcissistic traits emerged as having the strongest associations with these problem behaviors. CU traits had the second strongest association with overt aggression, relational aggression, and delinquency. In support of our hypotheses, Machiavellian traits were initially associated with relational aggression and this association was weaker than those found with narcissistic traits and CU traits. Surprisingly, and contrary to our hypotheses and previous research in adolescents (Chabrol et al., 2009), Machiavellian traits were also found to be associated with delinquency and moderately associated with overt aggression at the bivariate level.

In terms of emotional dysregulation, initial results supported our hypotheses. Narcissistic traits showed the strongest association, followed by Machiavellian traits, and then CU traits. Our

hypothesis that CU traits would show the strongest association with behavioral dysregulation was not supported. Instead, narcissistic traits showed the strongest association with behavioral dysregulation, followed by CU traits. Consistent with our hypothesis, Machiavellian traits showed the weakest association with behavioral dysregulation. Overall, these initial results suggest that the three personalities predispose youth to engage in maladaptive behavior, and because of their differing strengths of associations, also support the uniqueness of CU traits, narcissistic traits, and Machiavellian traits. Nonetheless, because of the significant overlap between the three personality traits, it is important to distinguish how CU, narcissistic and Machiavellian personality traits may uniquely and differentially contribute to overt aggression, relational aggression, delinquency, behavioral dysregulation, and emotional dysregulation. To answer these questions, hierarchical regression analyses were conducted in which the three personality traits were simultaneously entered as predictors so that their shared variance could be controlled for.

Callous and Unemotional Traits

In terms of unique associations, regression analyses showed that after controlling for the variance accounted for by the two other personality traits, CU traits uniquely predicted overt aggression, relational aggression, and delinquency. Furthermore, the association with overt aggression remained significant after controlling for relational aggression. However, after controlling for overt aggression, the association between CU traits with relational aggression was no longer significant. The positive associations with overt aggression, relational aggression, and delinquency are in line with our hypotheses and that of previous research in samples of non-referred children and youth (Frick, Cornell, Barry et al., 2003; Marsee, et al., 2005), that children and youth characterized by CU traits are especially predisposed to generally engage in

aggressive behavior and delinquency. Further analyses were conducted to control for the significant correlation between overt aggression and relational aggression. After controlling for overt aggression, it seems that CU traits no longer predicted relational aggression. This finding is inconsistent with previous research (Marsee, et al., 2005), and may be due to measurement issues or gender differences. For example, Marsee and colleagues used the total score of the APSD (Frick & Hare, 2001) as their measure of psychopathic traits. The results of their study found that psychopathic traits significantly predicted overt aggression, especially for boys, whereas psychopathic traits were especially predictive of relational aggression in girls. In the present study boys were more likely to engage in overt aggression than girls, but no gender differences were observed for relational aggression, although there was a slight trend for boys to report more relational aggression. In addition, boys were found to self-report higher levels of aggressive behavior in general. The non-significant association between CU traits and relational aggression may then be due to the lower frequency of reported relational aggression in the study, and the strong association between boys and overt aggression. Furthermore, the findings of the current study that narcissistic traits has the strongest association with overt and relational aggression may be consistent with that of Marsee and colleagues (2005) because both utilized the same measure. Narcissistic traits in the present study were measured using the narcissism subscale of the APSD (Frick & Hare, 2001), whereas callous unemotional traits were measured using the ICU (Frick, 2004).

In general, these results suggest that although CU traits are associated with both types of aggression, youth with CU traits may engage in overt aggression to a larger extent than relational aggression. This is the general pattern that has been observed in previous research, such that clinic-referred and community youth high in CU traits designates a subgroup of aggressive youth

that show a more severe pattern of aggressive behavior (Frick, et al., 2005; Marsee et al., 2005; Salekin & Frick, 2005). Therefore, CU traits may serve as a better predictor of more direct and physical (e.g., kicking, punching) forms of aggression than covert and indirect (e.g., gossiping, social exclusion) forms of aggression. A possible explanation for why direct forms of aggression are preferred above indirect forms may be due to fearlessness or thrill and sensation seeking tendencies that are often associated with CU traits (Barry et al., 2000; Essau, et al., 2006; Frick, Cornell, Bodin et al., 2003). These findings suggest that youth with CU traits are less likely to be fearful of the consequences that are elicited by their behavior; therefore they may be less likely to engage in covert forms of aggression because they are not afraid of being caught.

In accord with our hypothesis and that of previous research (Marsee et al., 2005; Frick, Cornell, Barry et al., 2003) CU traits were significantly associated with delinquency. This result is consistent with previous research in a sample of community children (Frick, Cornell, Barry et al., 2003). Specifically, CU traits in the absence of initial conduct problems significantly predicted higher levels of delinquency at 1-year follow-up compared to children who were initially low in CU traits and high in conduct problems. Furthermore, this association was particularly strong for girls who were high in CU traits but did not show significant conduct problems. A similar trend was observed where the association for psychopathic traits and nonviolent delinquency was stronger for girls (Marsee et al., 2005). These results suggest that youth with CU traits are more likely to engage in a wider variety of problem behaviors (e.g., theft, drug use, vandalism), that are not just restricted with the direct intent to harm another person. The use of delinquent behavior may be due to the biased expectation often associated with CU traits in adjudicated youth, that the use of antisocial and aggressive behaviors are effective means to gain rewards (Pardini et al., 2003). The use of delinquent behavior is also in

line with findings that CU traits are associated with a reward-oriented cognitive style in clinic-referred youth, such that youth with CU traits are focused on the rewards, not the consequences of their behavior (Barry et al., 2000). In general it seems that youth characterized by CU traits may exhibit higher rates of aggressive and delinquent behaviors due to such associations with fearlessness, sensation seeking, and possibly poor decision making skills (e.g., expecting positive rewards from antisocial and aggressive behaviors) (Barry et al., 2000; Essau, et al., 2006; Frick, Cornell, Bodin et al., 2003). These earlier findings are in line with the unique associations found for CU traits with emotional and behavioral dysregulation in the present study.

After controlling for the variance accounted for by the two other personality traits, CU traits uniquely predicted behavioral dysregulation, but no longer predicted emotional dysregulation. The positive association found with behavioral dysregulation, but not with emotional dysregulation, is in accord with our hypotheses and also consistent with those of previous research (Frick, Cornell, Barry et al., 2003). The weak association with emotional dysregulation in the present study corresponds with past research in youth that has demonstrated that those who score high on CU traits showed reduced responding to threatening and emotionally laden stimuli, and low levels of anxiety (Barry et al., 2000; Blair, 1999; Loney et al., 2003; Muñoz, Frick, Kimonis, & Aucoin, 2008). The results of the present study also indicate that youth characterized with CU traits are behaviorally impulsive (e.g., easily distracted, easily bored, irresponsible). The association of CU traits with behavioral impulsivity in the present study may also explain why youth with CU traits are more likely to engage in overt forms of aggression and delinquency. CU traits have been associated with a style of thinking that is a reward-dominant and also biased towards positive expectations, disregarding the consequences of behaviors (Barry, et al., 2000; Marsee & Frick, 2007; Pardini et al., 2003). The combination of

these associated findings evokes a picture of youth with CU traits as having a poor ability to control their immediate impulses in service of immediate gratification. Thus, if someone has an object (e.g., money) that they want, they are more likely to directly confront that person, and behave maladaptively (e.g., physically threaten, or get into a fight with) to acquire it, while at the same time disregarding the possible consequences of their behavior. The use of relational aggression in this proposed situation may not be as effective at satisfying immediate impulses.

Narcissistic Traits

A slightly different picture emerged for narcissistic personality traits. Supporting hypotheses, after controlling for the variance accounted for by the two other personality traits, narcissistic traits robustly and uniquely predicted overt aggression, relational aggression, and delinquency. These results are consistent with prior research in an at-risk sample of adolescents (Barry, Grafeman et al., 2007). Furthermore, the association between narcissistic traits with overt aggression remained significant after controlling for relational aggression. The association between narcissistic traits and relational aggression also remained significant after controlling for overt aggression. Contrary to hypotheses, the unique associations for aggressive behavior and delinquency with narcissistic traits were stronger than those found with CU traits. This is also inconsistent with previous literature in community, clinic-referred, and forensic children and adolescents, where CU traits were associated with more severe violence, aggression, impulsivity, and criminal behavior (Caputo et al., 1999; Christian et al., 1997; Essau et al., 2006). However, the stronger associations observed for narcissistic traits with problem behaviors is not entirely inconsistent with prior studies that have utilized the APSD (Frick & Hare, 2001) to compare CU traits to other dimensions of psychopathy with conduct problems, delinquency, and aggression. In a recent review, Frick and White (2008) found that overall, CU traits in samples of youth were

less strongly associated with conduct problems, and also showed similar or weaker associations with aggression, violence, and delinquency when compared to narcissism and impulsivity. This review suggests that CU traits do not seem to be more highly correlated with problem behaviors than other dimensions of psychopathy. However, results do indicate that CU traits are the most useful in designating *within* antisocial youth a distinct group that show a more severe and stable pattern of aggressive, violent, and antisocial behavior (Christian et al., 1997; Frick et al., 2005).

Following from previous research, the conflicting result of narcissistic traits being a stronger predictor of externalizing problem behaviors than CU traits in the present study may be a measurement issue, as the narcissism scale used in this study was a subscale taken from the APSD (Frick & Hare, 2001), a measure that assesses personality traits in relation to psychopathic traits. The items that make up the narcissism subscale (e.g., “Your emotions are shallow and fake”, “You use or ‘con’ other people to get what you want”, “You act charming and nice to get things you want”) may be tapping traits more specific to psychopathy (e.g., shallow affect, deceitfulness) than those related to narcissism (e.g., grandiosity, entitlement, and exhibitionism). Similarly, it has been argued that the narcissism subscale of the APSD does not adequately capture the multidimensional nature of narcissism (Barry & Frick, 2003). This limitation may confound the results found with CU traits if they are in fact using similar items to measure different constructs. However, because the correlation between CU traits and narcissistic traits was in the moderate range ($r = .36, p < .001$) in this study, the two subscales may be distinct enough to be capturing different constructs. Indeed, the regression analyses for narcissistic traits showed differential associations from CU traits beyond the findings of aggressive behavior and delinquency. In accord with our hypotheses, after controlling for the variance accounted for by

the two other personality traits, narcissistic traits uniquely predicted emotional dysregulation and behavioral dysregulation.

According to the current results, youth who are characterized by narcissistic traits seem to be the most maladaptive when compared to those characterized by CU traits or Machiavellian traits. In addition to showing the strongest associations with aggressive behavior and delinquency, narcissistic traits also showed the strongest associations with behavioral dysregulation and emotional dysregulation. These results indicate that youth characterized by narcissistic traits are especially prone to behave impulsively and irresponsibly, to experience intense emotions (e.g., anger, worry), and to have trouble controlling their emotions. These findings are consistent with results for non-referred adult populations, such that individuals with narcissistic traits versus those without experience more intense anger, express more aggression (Papps & O'Carroll, 1998; Washburn et al., 2004), and are more behaviorally impulsive (Vazire & Funder, 2006). This combination of narcissistic traits with emotional and behavioral dysregulation may make youth especially unstable and volatile, committing acts of aggressive behavior as a result of intense anger and poor impulse control due to perceived slights to their self-image. This type of retaliatory aggressive behavior, also known as reactive aggression, has been previously associated with youth high in narcissistic traits (Barry, Thompson et al., 2007). The grandiose and entitled beliefs that characterize narcissism, coupled with the poor ability to control emotions and impulses may also lead to the use of more severe aggressive behavior, such as physically and verbally assaulting someone before stopping to think about their actions, and allowing them to easily disregard the feelings of the other person. Narcissistic traits, specifically those that denote grandiosity, entitlement, and exploitativeness, have been associated with direct physical and retaliatory aggression in adults and youth (Bushman & Baumeister, 1998; Bushman

et al., 2009; Reidy et al., 2008 Twenge & Campbell, 2003). Taken together with the present results of the study for CU traits, this may suggest that the aggressive behavior committed by youth with CU traits is more of a function of proactive aggression, used to obtain a reward. In contrast, the aggressive behavior of youth characterized with narcissistic traits may be more of a function of reactive aggression, to protect their self-worth and social status. This was not tested in the present study but it would be congruent with previous research, showing that CU traits are especially predictive of proactive aggression, and narcissistic traits are predictive of reactive aggression (Barry, Thompson et al., 2007; Frick, Cornell, Barry et al., 2003; Kimonis, Frick et al., 2006; Thomaes et al., 2008).

In this study and consistent with previous research (Barry et al., 2009), narcissistic traits were found to be more highly associated with relational aggression than overt aggression. The use of relational aggression is consistent with the conceptualization that the narcissist's grandiose self-views are contingent on: 1) how they perceive or believe how others view them, 2) what their social standing is relative to others, and importantly 3) that they must always feel superior to other people (Bushman & Baumeister, 1998; Raskin, et al., 1991). In addition, it has been posited that they have a fragile sense of self-worth that is easily threatened by others; and they are preoccupied with maintaining their inflated self-views (Raskin, et al., 1991; Rhodewalt & Morf, 1998). This conceptualization of a narcissistic individual suggests that they have a personal identity that is entirely dependent on interpersonal interactions. Relational aggression (e.g., gossiping, social exclusion) is a form of aggression that is more covert and indirect, and it targets aspects of a person's social relationships such as popularity, reputation, and likability (Prinstein, Boergers, & Vernberg, 2001). Thus, youth characterized by narcissistic traits may engage in this form of aggression more than overt aggression, because the likelihood of the

aggressive act being traced back to them is less, therefore allowing them to avoid negative backlash, while simultaneously improving and protecting their own status.

In support of our hypothesis, narcissistic traits were found to be strongly associated with delinquency. This association has also been observed in prior research in samples of community and at-risk children and adolescents (Barry, Frick et al., 2007; Barry, Grafeman et al., 2007; Barry et al., 2009). These results suggest that youth with narcissistic traits, like those with CU traits, are likely to engage in a variety of problematic behaviors that do not necessarily have to be aggressive in nature. The possible mechanisms underlying the common behavior exhibited by narcissistic youth and CU youth, however, may be different. Youth with narcissistic traits may engage in delinquent behavior because of their sense of entitlement, exploitatative, and exhibitionist tendencies (Barry, Frick et al., 2007; Barry, Grafeman et al., 2007). For example, they may engage in theft because they feel that they rightly deserve what they want, and at the same time they are asserting their superiority to possible peers. The unique association between narcissistic traits and behavioral dysregulation may also possibly explain delinquent behavior. Using the example just described above, the poor impulse control of youth with narcissistic traits may contribute to their delinquent behavior because they do not adequately take the time to think of adaptive solutions and instead act impulsively and irresponsibly, in line with previous research on adults (Vazire & Funder, 2006). Another possible explanation is the sense of invulnerability that youth with narcissistic traits may experience (Barry et al., 2009). In a sample of at-risk adolescents, Barry and colleagues (2009) found narcissistic traits to be positively associated with invulnerability (e.g., feeling impervious to danger and being hurt). They also found invulnerability to be positively associated with delinquency. This may be another pathway in

which delinquent behavior manifests itself in youth with narcissistic traits, such that they feel they are able to do anything without suffering the consequences.

Machiavellian Traits

In contrast to CU traits and narcissistic traits, the regression analyses for Machiavellian traits revealed the weakest associations with externalizing behavior problems (aggression, delinquency, behavioral dysregulation). In congruence with previous research on psychiatric inpatient youth (Loftus & Glenwick, 2001), initial bivariate correlations suggested that Machiavellian traits were associated with aggressive and delinquent behavior in youth, however these results should be interpreted cautiously because of the high rate of comorbidity with other disorders in their sample. In support of our hypotheses, Machiavellian traits were no longer associated with overt aggression or delinquency after controlling for CU and narcissistic traits. However, contrary to our hypothesis, after controlling for the variance accounted for by CU traits and narcissistic traits, Machiavellian traits did not uniquely predict relational aggression. This finding is inconsistent with previous studies that found Machiavellian traits to be associated with the use of deceptive tactics and indirect aggressive behaviors in children and youth (Braginsky, 1970; Sutton & Keogh, 2000). Additionally, the directions of associations for overt and relational aggression were in the negative direction; however after further regression analyses controlling for the alternate subtype of aggression, these associations were reduced to zero. These results suggest that the aggressive and delinquent behavior that is observed in youth characterized with Machiavellian traits may be due to the shared overlap with CU traits and narcissistic traits. Specifically, the association between Machiavellian traits and aggressive and delinquent behavior may be better accounted for by characteristics that denote a general distrust of others, lack of empathy, and self-centeredness.

Consistent with our hypotheses, after controlling for the variance accounted for by the two other personality traits, Machiavellian traits uniquely predicted emotional dysregulation, but did not predict behavioral dysregulation. This finding indicates that youth characterized by Machiavellian traits may be prone to anger and worry, often ruminating and losing control over their emotions. This finding is consistent with prior research on adults and youth showing that Machiavellianism is associated with neuroticism (Sutton & Keogh, 2000; Sutton & Keogh, 2001; Vernon et al., 2008). Neuroticism, also known as emotional instability, is defined as the tendency to experience emotions, such as anger, hostility, anxiety, and depression (McCrae & John, 1992). Individuals who score high on neuroticism are prone to be emotionally reactive and easily vulnerable to stress, often ruminating over their negative emotions for prolonged periods of time (John et al., 2008).

In comparison to the results for CU traits and narcissistic traits, Machiavellian traits were not associated with behavioral dysregulation. This result suggests that youth who are characterized by Machiavellian traits are less behaviorally impulsive than those characterized by narcissistic traits and CU traits. The current results are also in line with findings in an undergraduate sample showing that Machiavellian traits were correlated with the tendency to proactively imagine and plan out possible upcoming social interactions, as well as retroactively think of how previous interactions could have been handled effectively (Allen, 1990). However, it bears noting that Machiavellian traits were significantly associated with emotional dysregulation in the current study, suggesting that youth who exhibit these traits may have significant problems with regulating intense fluctuations in mood, are easily worried, and may experience sustained periods of negative emotions (Cole, Michel, Teti, 1994).

The observed differential associations between behavioral and emotional dysregulation and Machiavellian, narcissistic, and CU traits in the present study may explain the lack of associations between externalizing behaviors (aggression and delinquency) and Machiavellian traits. The current results show that narcissistic traits showed the strongest association with emotional dysregulation and behavioral dysregulation, while CU traits were strongly associated with behavioral dysregulation, but not associated with emotional dysregulation. Machiavellian traits showed a strong association with emotional dysregulation, but were not associated with behavioral dysregulation. The common shared association of behavioral dysregulation with CU traits and narcissistic traits may possibly underlie their associations with aggressive behavior and delinquency because they may have more difficulty inhibiting their impulses. In contrast, Machiavellian traits and narcissistic traits were both associated with emotional dysregulation in this study, but only narcissistic traits were associated with behavioral dysregulation. This suggests that youth characterized by Machiavellian traits or narcissistic traits are prone to easily lose control of their emotions (e.g., easily angered), but their ability to control their immediate behavioral impulses (e.g., act on their anger towards another person) is different. Specifically, our results suggest that youth characterized by narcissistic traits are more likely to act on their impulses, whereas youth characterized by Machiavellian traits may have better control over their behavioral impulses. The Machiavellian youth's better ability to control their immediate impulses may then act as a protective factor against aggressive and delinquent behavior. Further research is needed in order to test these proposed hypotheses and to clarify the possible underlying shared similarities and differences that may lead to problem behavior.

Implications

The results of the present study may have implications for intervention with youth characterized by CU traits, narcissistic traits, and/or Machiavellian traits. Specifically, the differential associations found in this study between behavior problems and the three personality traits suggest that unique underlying mechanisms may be associated with aggressive and delinquent behavior. Accordingly, treatment efforts may need to be individually tailored to youth showing these traits in order to increase effectiveness. For example, aggressive youth primarily characterized by narcissistic traits would likely benefit from an intervention program that puts particular emphasis on building coping skills to handle negative evaluations, rejections, and threats to their social status, via anger management and coping techniques (Lochman & Wells, 2003). In addition to training in coping with negative evaluations and rejections, such youth might benefit from treatments that address their inflated and fragile self-views, instead of the traditional approach of generally building higher levels of self-esteem, which may in fact be detrimental in this group in that they should instead focus on building a more realistic view of their self (Bushman et al., 2009; Thomaes et al., 2008). For aggressive youth primarily characterized by CU traits, interventions aimed at their reward-dominant cognitive style, self-interests/motivations, lack of regard for punishment and consequences, and behavioral impulsivity may be warranted (Pardini et al., 2003). Examples of such strategies are the use of behavioral reinforcements to increase appropriate acts and responses, and improving behavioral repertoires of appropriate social problem-solving techniques (Kazdin, 2010). For youth primarily characterized by Machiavellian traits, interventions may benefit by using an approach that addresses acquiring and improving skills in emotion regulation, such as relaxation and coping techniques with anger and anxiety (Lochman & Wells, 2003).

The study provides further evidence for the association between narcissistic traits and maladaptive behavior. Narcissistic traits demonstrated the strongest independent associations with aggressive behaviors, delinquency, emotional dysregulation, and behavioral dysregulation. These results match those of prior research that has consistently found narcissistic traits to predict aggressive behavior (overt, relational, proactive, reactive), conduct problems, and delinquency beyond the general spectrum of psychopathic traits (Barry, Frick et al., 2007; Barry et al., 2003; Barry, Thompson et al, 2007), thus supporting their status as a separate construct that warrants further research.

Limitations and Future Directions

In light of these findings and recommendations, there are several limitations to be discussed. It should be noted that the results of the present study are correlational and cross-sectional in nature, thus causation cannot be inferred. Future research should examine these personality traits and their associations with problem behaviors longitudinally in order to elucidate the stability of the personality traits, effect of environmental influences (e.g., parenting practices), and whether the maladaptive behaviors exhibited are contingent upon changes in certain aspects of traits and abilities to control emotions and behavioral impulsivity. The present study examined two aspects of dysregulation, emotional and behavioral, but did not take into account cognitive regulatory abilities. Cognitive regulation is the ability to think ahead, plan, and be flexible in response to changing situations. Future research should also take into account cognitive dysregulation with these personality traits. In doing so, this information may aid in the study of the proactive (e.g., planned, instrumental) and reactive (e.g., retaliatory, hostile) functions of aggression behavior in relation to CU traits, narcissistic traits, and Machiavellian traits.

As previously mentioned, a limitation of this study is the use of the narcissism subscale of the APSD (Frick & Hare, 2001). The subscale only demonstrated modest internal consistency and measures only characteristics that are linked to psychopathy and do not account for a more complete conceptualization of narcissism as it is more commonly defined (e.g., grandiosity, entitlement, self-sufficiency, superiority, motivations). Future research should use a more comprehensive measure of narcissism to more adequately measure narcissistic traits and better account for the multifaceted nature of the narcissism construct (Barry et al., 2003; Barry & Wallace, 2010).

Another limitation in this study is shared method variance. The study only used self-report methods to assess personality traits and behaviors, and this could have resulted in the creation and inflation of associations among our constructs that may not actually exist. For example, youth who endorse more CU traits may be more inclined to self-report more aggressive and antisocial behavior. Thus future studies may want to collect data from multiple sources, such as parents, teachers, and peers.

Although it is important to study these personality characteristics in a community sample, it also means that the results of the study may not generalize to youth from at-risk, clinic, and forensic populations. For example, our sample may not be particularly representative of aggressive youth if there was a self-selection participation bias by parents and children who were more cooperative and prosocial, and naturally had lower levels of aggression. Future research that plans to examine these three personality traits may want to extend it to at-risk and detained samples in order to determine whether similar associations between personality traits and behavior problems emerge.

Conclusions

In summary, the overall results of the study support the contention that callous and unemotional traits, narcissistic traits, and Machiavellian traits are unique personalities that warrant further examination. Additionally, the results give some indication that the three personality traits can be measured meaningfully in youth, similar to the approach used with adults. These findings in a sample of community youth also expand and provide support for the existing adult literature (Campbell et al., 2009; Hodson, Hogg, & MacInnis, 2009; Jakobwitz & Egan, 2006; Lee & Ashton, 2005; Paulhus & Williams, 2002) that argues for the distinctness of these three personality traits. Specifically, the present study demonstrated that the three personalities show differential and unique associations with aggressive behavior (overt and relational aggression), delinquency, emotional dysregulation, and behavioral dysregulation. These differential associations may lend insight into the importance of individualized treatment approaches for aggressive youth who are primarily characterized by one of the three personalities.

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